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10

PACIFIC PULP & PAPER INDUSTRY

APRIL • 1937

Vol. 11 • No. 4

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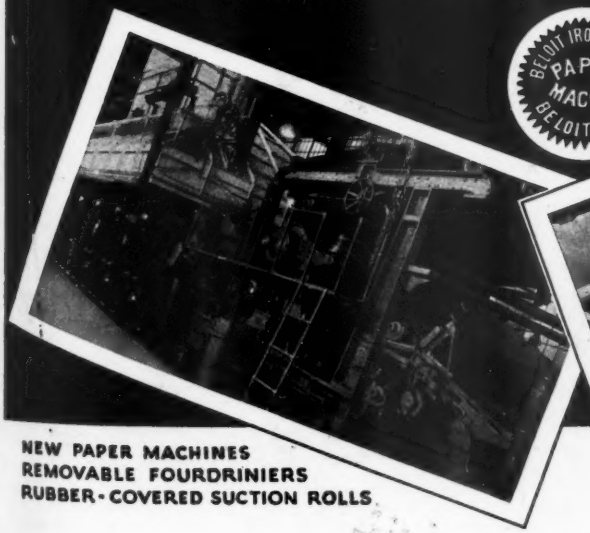

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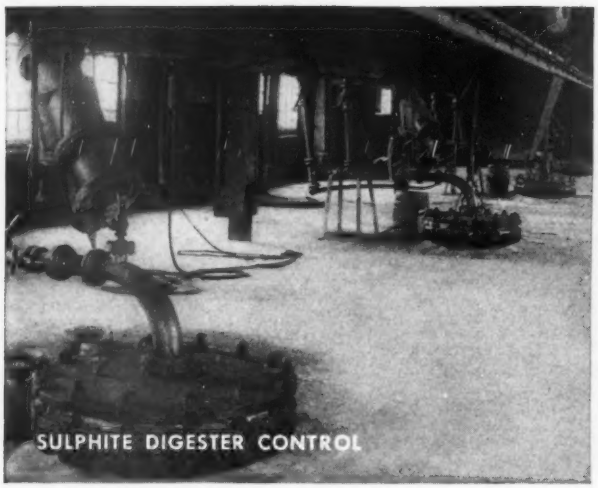
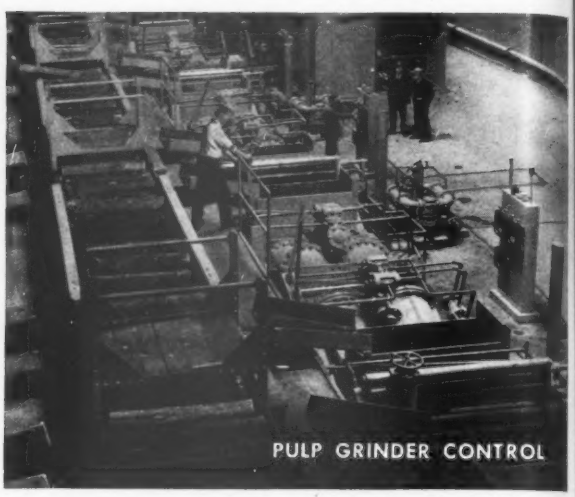

SULPHITE DIGESTER CONTROL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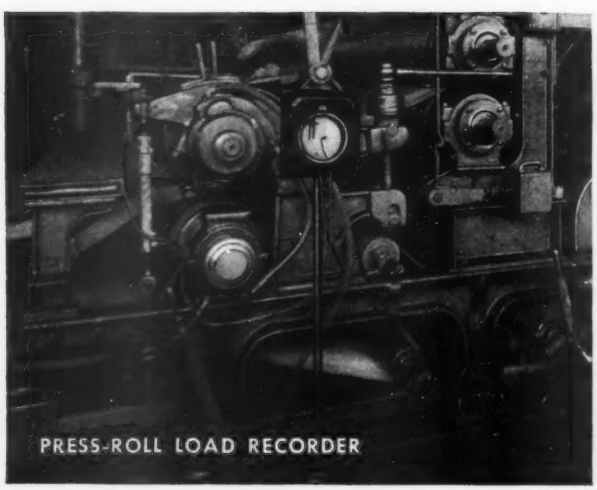
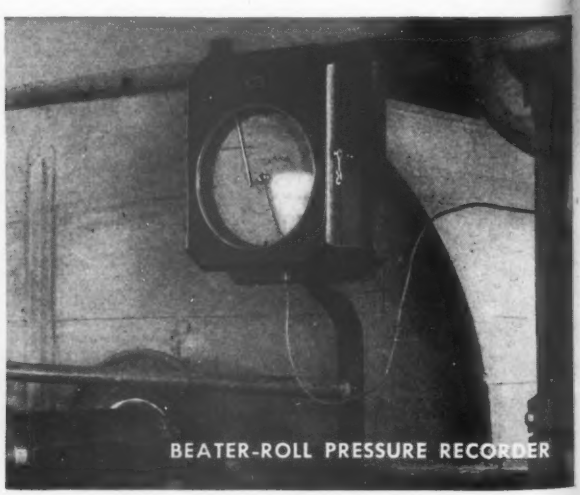

PRESS-ROLL LOAD RECORDER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Economic Feasibility of

A Rayon Plant

in the Pacific Northwest

by W. C. McINDOE*

This study of the economic feasibility of a rayon plant in the Pacific Northwest is not complete, and, therefore, any conclusions given here are preliminary and subject to revision later. However, it is believed that they are sufficiently correct not to be overturned by data subsequently available.

As a part of the studies of potential markets for Bonneville power undertaken by the Corps of Engineers, U. S. Army, it is logical to base some on the most abundant resources of the Pacific Northwest; namely, wood pulp and hydro-electric power. With the rayon industry in the United States now receiving better than 40 per cent of its total bleached sulphite hemlock pulp from the state of Washington, a rayon plant here would be close to the supply of its basic raw material.

As a potential consumer of Bonneville power, such a plant would be a very small item alone, regardless of the process used, but it is logical to assume that the feeder industries would locate here also. They, as a group, would swell the total power consumption to substantial rigures, and in their turn would attract other electrochemical industries. A favorable report, then, on rayon would constitute a strong invitation to the tributary industries to join us also.

And, indeed, this report is favorable. A study of the economic factors of Pacific availabilities and costs of materials, cost of direct labor, transportation costs, present and potential markets, justifies such a conclusion.

In order to illustrate and prove this conclusion, let us assume a Pacific Northwest rayon plant at Vancouver, Washington, or Newberg, Oregon. These two central locations are used only as typical illustrations of several of the many advantageous sites here in the Northwest. Let us assume also that in size such a plant be approximately the average of the industry, or of 10,000,000 pounds (5,000 tons) yearly capacity.

If the viscose process be used, the plant and its feeder industries would use a continuous demand of 4,793.09 kw. at 100 per cent load factor, which is 5,-991.4 kw. at 80 per cent load factor. Thus, this industrial group would account for only 6.98 per cent of Bonneville's first two units. The feeder industries which consume power would be invited here are caustic soda, carbon bisulphide and sulphuric acid. The rest of the chemicals involved are also present articles of manufacture on this Coast. See Plate 1 attached for Pacific sources of materials.

If the acetate process be used, the group of industries would use a continuous demand of 12,766.06 kw. at 100 per cent load factor (15,957.58 kw. at 80 per cent load factor) which would absorb 18.55 per cent of Bonneville's first two units. In this case the power consuming feeder industries would be two in number: (1) calcium carbide for the acetic acid, acetic anhydride and acetone, and (2) sulphuric acid. Of the materials required for the acetate process only the acetic acid and its anhydride are missing in the Pacific Coast's list of manufactured articles.

Now let us go a step further and assume that our invitation is accepted by not one but two rayon companies, giving us a viscose plant at Newberg and an acetate plant at Vancouver. The total benefits accruing to Bonneville from these groups of industries would be 21,949 kw. at 80 per cent load factor, thus satisfying over 25 per cent of our search for consumers of Bonneville's initial power production.

This may seem to be optimism carried to a fantastic degree; but don't be too sure of that. Let's go back over the record. If the present rate of increase in production holds for even three years more, the United States will be producing annually 70 per cent more than this year's record and double the 1936 yarn production before 1942 is past. Also, the 1935 production of 277 million pounds fell 21.5 million pounds short of domestic consumption.* The rate of increase in production of cellulose plastics is far greater than that for yarn, more than doubling in a single year. Plate II shows rayon and cellulose plastics production in the United States.

So much for the Bonneville side of the picture.

The invitation to the feeder, or tributary, industries in terms of markets for their products would be on the scale of thousands of tons annually. For example, a 5,000 ton viscose plant would require nearly 6,000 tons of bleached sulphite pulp, and approximately the following: 1,700 tons carbon bisulphide, 6,000 tons of solid caustic soda, 9,500 tons of 60 degree sulphuric acid, 2,200 tons of sodium sulphate, 200 tons zinc sulphate, and 2,000 tons of glucose. The acetate plant of similar size, in addition to 3,500 tons of cotton linters, would call for approximately 4,000 tons of glacial acetic acid, 3,500 tons of acetone, and 500 tons of 60-degree sulphuric acid. Should such a plant decide to use pulp instead of linters, that requirement would be roughly 4,000 tons on the basis of alpha cellulose content. At present the acetate process is using only cotton linters for its cellulose; but patents are in existence for the utilization of wood pulp in place of linters. Dean Harry F. Lewis, The Institute of Paper Chemistry, during his recent visit on the

*Assistant Chemist, Corps of Engineers, U. S. Army, Portland, Oregon. Presented at the Pacific Northwest Chemurgic Conference, Spokane, Washington, March 22-23, 10937.

*Around January 1, 1937, stocks of yarn on hand were only three days ahead of demand.

Coast, predicted the manufacture of cellulose acetate from wood pulp on a commercial scale within a year. At present these figures are rough approximations and subject to corrections for recovery of waste materials practiced in the industry.

Generally speaking, the Pacific costs of these raw materials are below New Yorw levels. The transportation costs for delivering them to the rayon plant would be more comparable to conditions existing on the Atlantic Coast.

A valid comparison of the total cost of direct labor between the Atlantic and Pacific Coasts is impossible because no rayon plant is in existence in the Pacific Northwest. However, the nearest thing to it is based on the wages for similar textile operations in our local woolen and knitting mills. The report of the Bureau of Census for 1935 indicated an advance of 31.3 per cent in wages since 1932 in the rayon industry (now situated in the Middle and South Atlantic states). The 1932 wages for direct labor were established by a survey of the Department of Labor at $0.342 per hr. for men and $0.273 per hr. for women. The 31.3 per cent increase brings these two averages to $0.439 per hr. and $0.358 per hr., respectively. At present here in the Northwest we are paying men $0.45 per hr. and women $0.3925 per hr. The rayon industry uses 51.5 per cent male and 48.5 per cent female labor. Now let's see what this Eastern advantage in cost of labor amounts to. For the viscose plant it would be $0.011 per lb. of yarn, and for the acetate plant only $0.003 per lb. Other things being equal, the lower cost of materials and far cheaper power and fuel here in the Pacific Northwest should overcome this Eastern advantage handily. Any rayon yarnproduction would tend to stimulate rather than compete with our existing textile industries in wool, cotton and flax on account of the great variety of mixed fabrics possible.

Cellulose Plastics

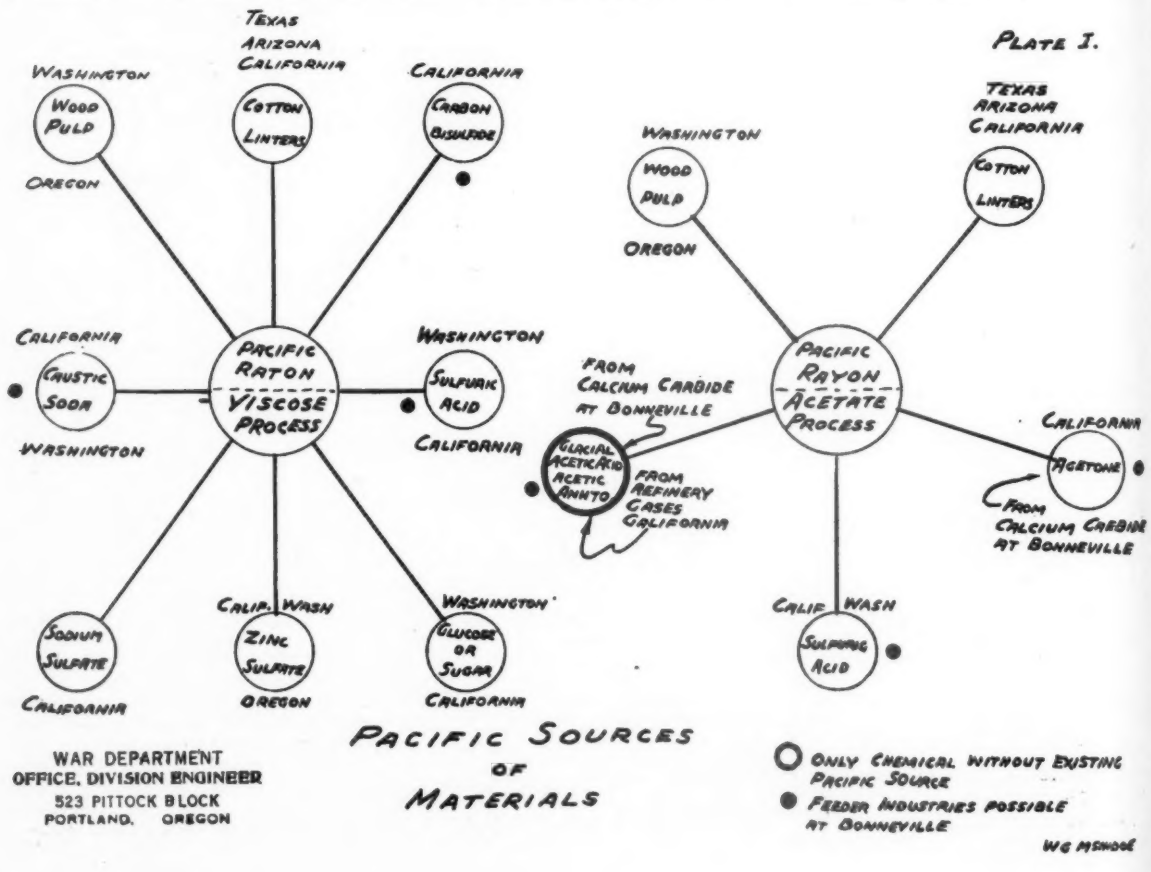
Any study of existing and potential markets must include the subject of cellulose-base plastics. This is true because of the fact that, when stripped to bare essentials, the end product of a rayon plant is yarn if the spinning solution is extruded through small holes; is sheeting (cellophane) if extruded through a slot; and is molding powder for plastics if precipitated in granular form. For such plastics we have existing Pacific Coast markets in transparent wrappings (perhaps of fruits and vegetables), in paints and lacquers and as plastics for the automobile assembly and aeroplane manufacturing plants. Also, rayon has come on the market just recently as the cord and fabric for automobile tires. The nearest market for that use is the rubber tire plants of California.

Moderate amounts of rayon yarn are being shipped to the Pacific Coast now for weaving in our local textile markets. From almost any site in the Northwest we could expect to dominate the market west of the Rockies; export, perhaps, to Mexico, the Orient and Australia; and reach the New York or New England markets with any excess production.

Based on the supposition that at first and while developing the local yarn markets all the Northwest's production would have to go into the existing New York-New Jersey and New England textile centers, a study was made of transportation costs at existing rates involved in moving the wood pulp from the mill to the rayon plant plus shipping the finished yarn to the textile centers. For this study pulp movements were assumed from Puget Sound to Vancouver, Washington, (the Newberg plant being alongside a pulp mill was not charged for transporting pulp), and through the Panama Canal to ports on the Gulf and Atlantic seaboards, thence by rail to the locations of actual rayon plants; also from Timiskaming, Quebec, by rail, and from Campbellton, New Brunswick, and South Brewer, Maine, by rail and water; and finally the finished yarn movements to markets.

Rail shipments of finished yarn to Eastern markets at existing high rates are out of the question; but the 25½ day water shipment by way of the Panama Canal is worthy of study. Certainly some of the rayon plants in the East are so favorably situated as to markets that no competition is possible from Pacific Coast sources; but that is not everywhere the case. Generally speaking, wherever an existing Eastern rayon plant has to pay between $21 and $23 to get pulp to their plant and then yarn to the New York-New Jersey center, and between $23 and $25 similarly to New England, we could enjoy a share of the market from the Pacific Northwest. The water movement of yarn from this Coast would include a transit insurance charge of $0.30 on $100 valuation. Any future reduction of rates encouraged by the volume of movement would favor the Pacific Northwest.

PLATE I.



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WG MSHOOK

Actually, it would probably be a shared rather than a competitive market; because the relatively high cost of plant, large captilization, and necessity of securing process licenses or paying royalties would operate to deter new and independent interests from coming here. Thus the most logical action is for the Pacific Northwest to invite one or more of the well established rayon companies to include a site here in their present vigorous expansion program.

Talk of Pulp Mill At Olympia

A committee from the Olympia, Washington chamber of commerce appeared before the city commissioners on March 23rd and asked that the city investigate possible water sources with a view toward bringing a pulp mill to the city, according to a news story appearing in the Morning Olympian.

The committee, consisting of Charles R. Maybury, president of the chamber of commerce; Fred F. Chitty, chairman of the industrial committee, and Carlton Sears and L. A. Wack of the civic relations committee, told the commissioners that "Northwest timbermen and financiers, interested in erecting a pulp mill in Olympia or some other Puget Sound city, have asked for information relative to water supply, costs and sites."

The mill would cost $1,750,000 to build, they said, and would employ 400 men at an annual payroll of $600,000.

While the original unit would require 5,000,000 gallons of water daily, a supply of 20,000,000 gallons per day would be necessary because the mill would be built with the idea of future expansion.

The commissioners were told that the parties interested in building the mill in Olympia have indicated that the raw material situation in Olympia is superior to that of other cities, but the cost of water is a problem which requires the attention of the city officials.

The city commissioners assured the committee that all possible water supplies tributary to Olympia would be thoroughly investigated.

Soundview to Exercise Water Option

The Soundview Pulp Company notified the city commissioners of Everett, Washington, on March 19th that the company desired to exercise its option on 13,000,000 gallons of water per day additional. This option was given by the city in August, 1936. The company said it will shortly be in a position to use more water and desired a conference with the city on the subject.

G. G. Paine, water superintendent of Everett, said the Soundview mill is at present using about 30,000,000 gallons daily. The city may not be able, Mr. Paine was quoted as saying, to supply more than thirty million gallons until the first of the year when the Sultan supply line No. 3 will be completed.

Steel pipe for the new water line from reservoir No. 2 to the pulp mill is now being fabricated and work on the line will begin during this month.

DeGuerre Returns From New Zealand

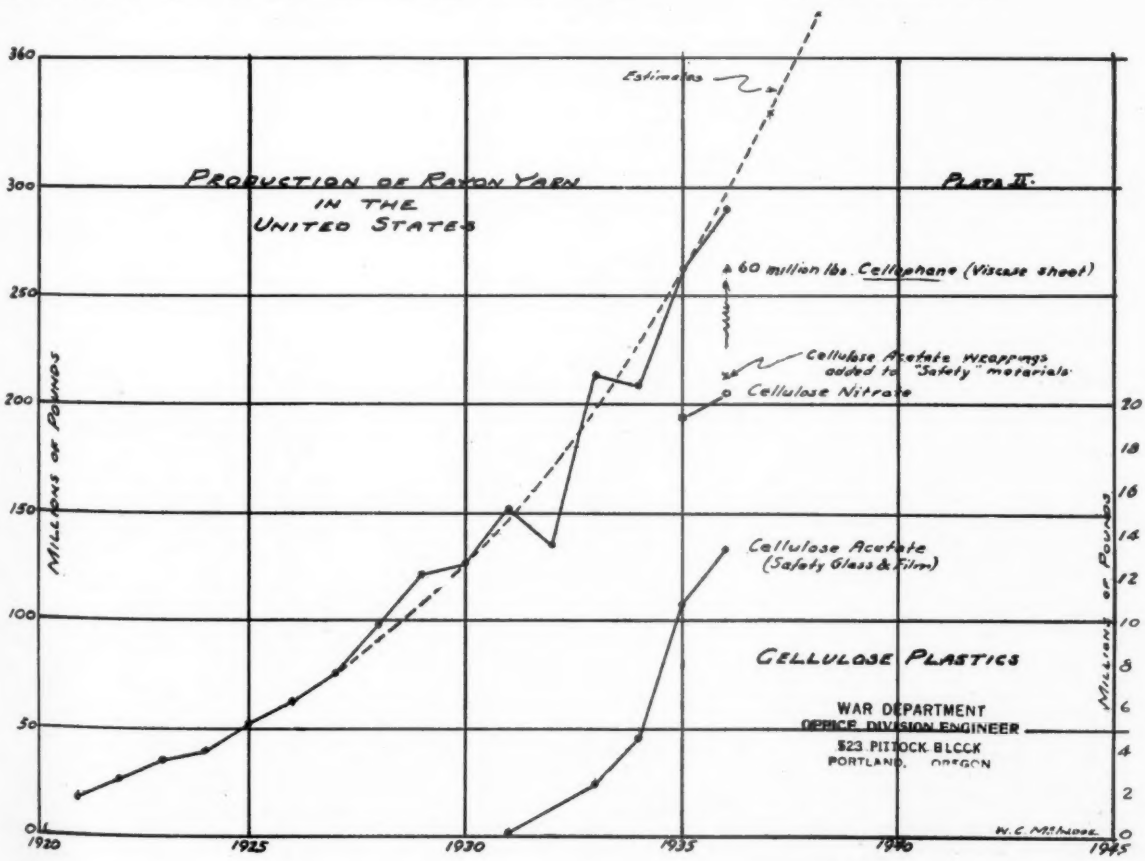
L. A. DeGuerre of Wisconsin Rapids, Wisconsin, arrived in San Francisco early in April after a three months trip to New Zealand where he is supervising the construction of a 50 tons per day kraft paper and board mill for the Whakatane Paper Mills, Limited.

Mr. DeGuerre, who visited in the Pacific Northwest before returning to his home in Wisconsin, said that the New Zealand mill was well under way and would be in production within a year. To start with the mill will produce groundwood pulp only, buying kraft pulp.

The machine, purchased from the Karlstad Works in Sweden will be a combination cylinder and fourdrinier with a Yankee dryer, trimming 108 inches.

Pomona Job Delayed

A number of delays have held up the installation of new equipment planned for an earlier date for the California Fruit Wrapping Mills of Pomona according to Charles G. Frampton, superintendent of the plant. The rubber covered suction press for number one machine will be delayed at least another thirty days, and the new type hood being manufactured by the J. O. Ross Engineering Company will not be installed until late June or early July.



Grays Harbor Starts New Digester Unit

Production Began April 5th

The new 50-ton digester unit of the Grays Harbor Pulp & Paper Company began commercial production on April 5th upon completion of the pipeline conceting the mill with the Wynooche River water supply.

Grays Harbor is now equipped to produce 250 tons per day of high-grade bleached sulphite pulp, much of which is of rayon grade. Approximately 50 tons per day takes care of the requirements of the paper mill which produces Management Bond and other papers under the supervision of the Hammermill Paper Company.

When Mr. W. S. Lucey, general manager of the Grays Harbor Pulp & Paper Company announced the decision to build the new unit on July 30, 1936, he estimated the time required would be from eight to ten months. The construction schedule has been maintained as originally planned and the 50-ton unit goes into production in approximately eight months after the announcement was made.

In his announcement last year Mr. Lucey pointed out that the mill was originally designed for six digesters or 300 tons per day, but only three digesters or 150 tons were installed in 1928 when the first unit was built. The fourth digester was added in 1934 and the fifth has just begun producing pulp. The mill now has room for another digester of 50 tons per days capacity.

Before the latest unit was begun the Grays Harbor Pulp & Paper Company prepared for additional capacity by enlarging the steam and power plant and by building a new log break-down plant. The capacity of the break-down plant is more than sufficient to takec are of the new digester.

The unit just completed embraces a five-story concrete addition to the digester building, 30 by 32 feet, and a 66 by 140 foot two-story addition to the screen room and bleach plant.

This new unit is to supply the paper mill with pulp, thereby releasing the other four digesters for steady production of high-grade rayon and bleached sulphite pulps for market. Operating efficiency will be improved, for in the past the pulp for the paper mill was produced in first one digester and then in another. Now there will be no switching.

To dry the additional pulp for market approximately 30 drying cylinders were added to the Black-Clawson Vertical Pulp Drying Machine.

Water for the New Unit

The Grays Harbor Pulp & Paper Company, which in the past operated its own private water system, now becomes the first customer of the Aberdeen industrial water system, built in 1929.

Contracts were made between the pulp company and the City of Hoquiam and between Hoquiam and the City of Aberdeen for pipeline construction to tap Aberdeen's industrial water supply from the Wynooche River.

A 54 inch pipe-line was constructed from Lake Aberdeen, the reservoir into which the tunnel line from the Wynooche discharges, across the cities of Aberdeen and Hoquiam to the pulp mill. This was completed in March and the water turned into it for cleaning purposes on March 25th.

Before the line was entirely completed the pulp company exercised its right under the water contract to require the construction of a 60 inch pipe-line across Lake Aberdeen to connect directly with the mouth of the tunnel. This direct line will eliminate the possibility of contamination of the water used in the mill by passing through Lake Aberdeen. The bypass line will be completed sometime in April, and in the interim the mill will use water from Lake Aberdeen and from its own East Hoquiam system jointly.

The costs of the bypass line is added to the price the Grays Harbor Pulp & Paper Company pays for the water. The line after crossing the lake is fitted with a double connection to permit the later building of a duplicate water line into Aberdeen or Hoquiam. Approximately 30,000,000 gallons of water per day will be taken by the pulp mill, which has an option to purchase an additional 40,000,000 gallons daily should it be required.

To provide absolutely pure water for its high-grade sulphite pulp, the company has constructed an additional water filter plant of 10,000,000 gallons per day capacity.

An interesting sidelight is the fact that this water tieup between the adjoining cities of Aberdeen and Hoquiam is the first public utility relationship between the two cities in their history.

Puget Sound Pays Dividend

The Puget Sound Pulp & Timber Company, with pulp mills at Bellingham and Anacortes, Washington, paid a dividend of 25 cents a share on March 25th to stockholders of record March 20th. The total of the dividend was more than $31,000 as 124,869 shares of stock are outstanding.

Ossian Anderson, president of Puget Sound Pulp & Timber Company, stated that the dividend was paid out of earnings for the first two months of 1937 which amounted to $66,370 after all charges but before income tax deduction. This is equivalent to 53 cents a share on the common stock.

Profit before deduction for shutdown expense and depreciation totalled $93,671 for the first two months of the year.

The company strengthened its position during 1936 through the retirement of the $300,000 RFC loan and of $85,722 in debentures. Assets at the beginning of 1937 were two to one compared with liabilities.

In 1936 the company's net earnings from pulp production and sales were $115,199, but these were reduced to $12,188 by losses in the logging division. The latter operations have now been placed on a profitable basis by elimination of carrying charges on the Clear Lake sawmill property which was dismantled and sold in 1936.

Prince Elected Paraffine Vice-President

Fred M. Prince, export manager of the Paraffine Companies since 1924, was elected vice-president in charge of exports on March 31st, according to an announcement by William H. Lowe, president.

Mr. Prince joined the export division of Paraffine in 1907 at Sydney, Australia. Before being transferred to San Francisco he engaged in the marketing of Paraffine products in Australia and New Zealand.

Rainier Starts New Drying Machine

The new Black-Clawson vertical pulp drying machine installed by the Rainier Pulp & Paper Company at Shelton, Washington, was turned over for the first time March 18th and a test run of pulp was run over the dryers on Monday, the 19th. The machine is now in full operation.

Pulp in semi-dry shredded form, bought on contract by Rainier from the Shaffer Pulp Company in Tacoma is being regularly received at Shelton in covered lighters. Upon arrival water is added under pressure and the pulp sluiced out of the barge into the mill system for screening, bleaching and drying.

Sixty-four dryers on the new machine will turn out better than 100 tons of pulp per day while the other machine at Rainier, with 96 tons produces approximately 185 tons of rayon pulp per day.

As the finishing touches are being put on the new pulp unit work is rapidly going forward on the company's new log breakdown plant to supply practically all of the pulp mill's wood requirements. So many men are working in Shelton that housing is at a premium.

An aditorial in the Mason County Journal, published in Shelton, gives credit to the Rainier Pulp & Paper Company for the town's business stability and steady growth.

Union Bag to Build Los Angeles Plant

Alexander Calder, president of the Union Bag and Paper Company, recently announced that his firm is moving its bag making plant now located at Vancouver, Washington, to Los Angeles, California. Construction is already under way on the new plant which will be located at 4355 Fruitland Avenue in the Central Manufacturing District. The building will be of reinforced concrete and brick construction. It will provide 80,000 square feet of floor space, and is situated on a plot of ground on which the company has an option on five additional acres. Thirty-eight bag making machines will be moved to the new site. The building contract specifies July 1 as the date for occupation. When in operation the plant's capacity will be 5,000,000 bags a day.

The plant is served by the L. A. Junction Railway. Grocery, cellophane, glassine, kraft and shopping bags will be made as well as bags made to special order. Construction work began the last week in March.

The company operates manufacturing plants in Chicago, Hudson Falls, N. Y., and Savannah, Georgia. The Savannah mill makes both kraft paper and bags and will supply the Los Angeles plant. This brings the source of supply nearer than it was previously in Vancouver, Washington.

T. M. Avery, vice-president in charge of production, flew to Los Angeles to make arrangements and returned April 2nd. G. S. Brenzel, production manager at the Vancouver plant will act in the same capacity at Los Angeles. Chas. Spies, Southern California manager of the Samuel W. Cupples Co., will continue as representative in the same territory.

The St. Regis Paper Company operates pulp and paper mills at Deferiet, Norfolk, Raymondville, Harrisville, Oswego and Norwood, New York. Subsidiaries include the New Hampshire-Vermont Lumber Company, the Panelyte Corporation, St. Regis Paper Company of Canada, Ltd. (pulpwood), the Ontario Specialties, Inc., the St. Regis Kraft Company, Bates Valve Bag Corporation, Bates International Bag Company, Bates Valve Bag Company, Ltd., and The Valve Bag Company.

The Bates Valve Bag Corporation operates five plants in the United States, three of which are located on the Pacific Coast at Seattle, Emeryville and Los Angeles, California. The other two are at Nazareth, Pa., and New Orleans, La.

Officers of the St. Regis Paper Company include: R. K. Ferguson, president; C. B. Martin, C. R. McMillen, R. B. Maltby and E. R. Gay, vice presidents; W. J. Dixon, secretary; W. H. Versfelt, treasurer; A. T. Robinson, Comptroller; W. E. Lincoln and G. F. Terry, assistant secretaries and assistant treasurers.

Directors are: F. L. Carlisle, chairman of the board; Jonathan Bulkley, W. K. Dick, R. K. Ferguson, H. E. Machold, R. B. Maltby, C. B. Martin, C. R. McMillen, C. E. Norris and B. B. Taggart.

The subsidiary, St. Regis Kraft Company, is represented on the Pacific Coast by Ossian Anderson, executive vice-presidetn and Pacific Coast resident director.

St. Regis Makes First Profit Since 1931

The 1936 annual report of the St. Regis Paper Company, with headquarters in New York City, was issued at the end of March.

President R. K. Ferguson, in his report to stockholders said that the company showed a net income for 1936 of $730,084.52 as compared with a loss of $395,482.27 in 1935. This was the first net profit since 1931.

Profit from the operations of St. Regis Paper Company and its subsidiaries amounted to $203,986.24, the balance of the net profit of $730,084.52 having come from dividends on investments and other income credits. Dividends on investments amounted to $348,121.33 and other income credits came to $177,976.95, the total being $526,098.28, as compared with $239,465.89 from the same sources in 1935.

Quoting from Mr. Ferguson's statement in the annual report: "At the annual meeting of the corporation held January 8, 1936, stockholders approved a reduction in the issued capital stock of the corporation in the amount of $20,625,000 and a reduction in the par value of the common shares from $10 par value to $5 par value. Following this action the plan set forth in the letter of December 20, 1935, providing for a reduction in the investments in stocks of subsidiaries and for reduction to nominal amounts of certain intangible assets (patents and good will) on the books of the corporation and subsidiaries amounting to approximately $17,000,000 was carried out and the consolidated balance sheet presented in this report is the first published statement of the corporation to give effect to these adjustments.

"Expanding paper consumption, greater use in rayon, staple fiber, plastics, etc., have brought about sharp advances in sulphite and kraft pulp prices and at the moment an actual shortage of these pulps exists. In order to be assured of an adequate supply of high grade pulp, the corporation appropriated a substantial sum for the purpose of rehabilitating and installing additional machinery and equipment in the mill of its subsidiary at Tacoma, Washington. To provide part of these funds, the corporation increased its demand bank loan by $1,000,000. The plant, which resumed operations in December, has a rated annual capacity of 60,000 tons of bleached and unbleached kraft pulp.

"Increased demand for heavy duty multiwall kraft bags for use in cement, lime plaster, gypsum and other rock products; also salt, fertilizer and other miscellaneous commodities, was quite marked and in respect to the rock products, is indicative of the greater activity just getting under way in the construction field. Many authorities are convinced that a broad national home building movement would provide one of the most effective aids in the solution of our employment program. Other countries have shown what can be accomplished in this direction and there is reason to believe that the United States will not continue to lag behind."

The consolidated balance sheet of the St. Regis Paper Company and subsidiaries, as of December 31, 1936, shows assets of $58,698,154.20.

Current assets total $6,659,578.34 against current liabilities of $2,334,287.80 (exclusive of demand bank loans which total $5,000,000). These demand loans are collateralized by securities owned by St. Regis and by the capital stock of a subsidiary and notes of a subsidiary secured by a mortgage of $1,500,000 on its property.

McMillen Visits Pacific Coast

C. R. McMillen, vice-president and a director of the St. Regis Paper Company, early in April made his first visit to the Tacoma mill of the St. Regis Kraft Company since it resumed operations in December, 1936.

Mr. McMillen inspected the rebuilt and expanded mill and conferred with Ossian Anderson, executive vice-president, and W. W. Griffith, resident manager of the St. Regis Kraft Company.

At the time the Tacoma mill was constructed in 1928 by the Union Bag & Paper Power Corporation, Mr. McMillen was vice-president of the companv and also of the parent corporation, the Union Bag & Paper Company. He was in active charge of the program which involved the design and building of the kraft pulp mill in Tacoma, later joining the St. Regis Paper Company about the time the Tacoma property was acquired from the Union Bag & Paper Company.

New Towboat and Barge For Crown Zellerbach

The Western Transportation Company, division of Crown Zellerbach Corportion, plans construction of a 90-foot diesel towboat and a 142-foot steel oil barge for use on the Columbia and Willamette Rivers.

Both vessels will be of all-welded steel construction. The tug will be equipped with two 220-horsepower diesel engines. The oil barge will have a capacity of 6,000 barrels of oil and will be equipped with pumps for discharging oil at the rate of 2,500 barrels an hour.

The tug replaces the steamer Ione which was wrecked in the Willamette River in February. Delivery of both vessels will be made August 1st.

Crown Zellerbach, Crown Willamette Merge

Stockholders Approve Plan

Since the merging of interests in 1928 of the Crown Willamette Paper Company by the Crown Zellerbach Corporation, I. Zellerbach, president of the Crown Zellerbach Corporation, and Louis Bloch, chairman of the board of Crown Zellerbach and president of the Crown Willamette Paper Company, have worked steadily toward a complete unification of these two outstanding corporations in the American pulp and paper industry.

Their objective was attained, their work of merging completed on March 25th when the statutory formalities were concluded and the merger became effective. On that day the Securities and Exchange Commission officially approved the listing of the merged company stock. The merger proposal had been approved by the stockholders of both Crown Zellerbach and Crown Willamette Paper Company on March 16th.

The smoothness of the merging of the two companies has been called a tribute by the thousands of stockholders to the management of Crown-Zellerbach and Crown-Willamette, and in particular, a vote of confidence in the judgment and integrity of Louis Bloch and I. Zellerbach, who nine years before had brought their two companies together in the preliminary steps toward the formation of the second largest pulp and paper organization on the continent, with assets in excess of $104,000,000.

Several large Pacific Northwest stockholders, who attended the merger meetings in San Francisco, reported that the unanimity of opinion in favor of the merger was most unusual. This journal was informed that only a very negligible number of the 258,334 shares of Crown Zellerbach series A and B preference stocks outstanding, voted in opposition to the merger.

One stockholder explained this confidence in the merger plan by saying that he had been associated with Mr. Zellerbach for nearly 30 years, and in all that time he had never known him to recommend any policy which did not prove beneficial to his company's stockholders.

Another stockholder, who owned Crown Willamette Paper Company preferred stock, expressed the same confidence in Mr. Bloch, saying that his policies had always proved to be profitable to the company's stockholders.

Although the Crown Willamette Paper Company is now, or will shortly be when details are concluded, completely owned by Crown Zellerbach, it will be officially designated as Crown Willamette Paper Company, Division of Crown Zellerbach Corporation. This same designation applies to the other subsidiaries of Crown Zellerbach Corporation as they appear in the organization chart published with this article.

Purpose of Merger

In the announcement to stockholders of both companies, dated February 9th, 1937, the merger plan and its purposes were set forth as follows:

"Since 1929, Crown Zellerbach Corporation (a Nevada Corporation) has owned all the common shares of Crown Willamette Paper Company (a Delaware Corporation) and the two corporations have been operated under substantially the same business policies and management. Recently a study has been made, which involved careful consideration of numerous problems, with a view to formulation of a plan of reorganization which would be fair to all stockholders and which would have as its objective the reorganization of the two corporations so as to accomplish the following:

"1. The merger of the two corporations, which should result in substantial benefits to all stockholders, and the distribution of all the property and assets of Crown Willamette Paper Company to Crown Zellerbach Corporation pursuant to a plan of liquidation; and

"2. The recapitalization of preferred stocks of both corporations at a dividend rate more nearly in line with prevailing investment rates, but with a right to convert into common stock. As a consequence all accrued dividends on present preferred stocks will be eliminated.

"After carefully weighing all of the various factors, the boards of directors of the two corporations have determined that such a Plan of Reorganization could be most satisfactorily carried out by means of a statutory merger and have adopted the Plan of Reorganization hereinafter set forth and have entered into a Merger Agreement subject to the approval of the stockholders of the two corporations, designed to carry out such a Plan of Reorganization."

The directors of the two companies recommended that the stockholders accept the Plan of Reorganization, and complete details of the proposal were mailed to each stockholder.

Plan of Reorganization

Below is the Plan of Reorganization which was approved by the stockholders of the Crown Zellerbach Corporation and of the Crown Willamette Paper Company on March 16th.

1. Crown Willamette Paper Company will be merged into, and all its property and assets will be distributed (pursuant to a plan of liquidation) to Crown Zellerbach Corporation, which will be the surviving corporation referred to herein and in the Merger Agreement;

2. There will be created a new issue of $5 Cumulative Preferred Stock of Crown Zellerbach Corporation, cumulative as to dividends from March 1st, 1937, and convertible into Common Stock upon the terms and conditions set forth in the Merger Agreement;

3. The present Common Stock without nominal or par value of Crown Zellerbach Corporation, presently capitalized at $5 per share, will be recapitalized into Common Stock with a par value of $5 per share;

4. The Articles of Incorporation of Crown Zellerbach will be amended, upon consummation of the merger, as set forth in the Merger Agreement; and

5. The Stockholders of the two Corporations will receive new shares of stock in Crown Zellerbach Corporation in exchange for their present shares as follows:

Crown Zellerbach Corporation (present) Common Stock: 1 share of Common Stock, $5 par value, for each share of present Common Stock.

Crown Zellerbach Corporation $6 Dividend Preference Stock, Series A and Series B:

1 1/40 shares of $5 Cumulative (Convertible) Preferred Stock and 1 share of Common Stock, $5 par value, for each share of Preference Stock.

Crown Willamette Paper Company $7 Dividend First Preferred Stock: 1 1/5 shares of $5 Cumulative (Convertible) Preferred Stock and 1/5 share of Com-

LOUIS BLOCH—I. ZELLERBACH

Two young men were working in paper houses in San Francisco in the early nineties.

Neither had an easy job. Louis Bloch was in a small bag plant of the Crown Paper Co. at 707 Front Street and Isadore Zellerbach was with his father in the paper jobbing firm of A. Zellerbach & Sons at 511 Clay Street.

Each came slowly and separately over the rugged path to success. Today, through nearly half a century of corporate growth and mergers and acquisitions, these two hold the topmost positions in the second largest pulp and paper corporation on the American continent and stand at the head of an industrial empire of men and mills and forests and offices.

Mr. Bloch was born in San Francisco, graduated from high school and got his first job—just a job—with the Crown bag plant. Mr. Zellerbach was born at Moore's Flat in Nevada County, California, and went to work at an early age. Before he was 21 he had acquired $10,000 and, at 22, bought a partnership in his father's business, a $20,000 concern.

These were their humble beginnings. This was their start. The accompanying article tells of the final merger of their companies into the Crown Zellerbach Corporation.

I. ZELLERBACH
President
Crown Zellerbach Corp.

mon Stock, $5 par value, for each share of First Preferred Stock.

Crown Willamette Paper Company $6 Dividend Second Preferred Stock: 4/5 share of $5 Cumulative (Convertible) Preferred Stock and 2½ shares of Common Stock, $5 par value, for each share of Second Preferred Stock.

Effects of the Merger

Among the results of the merger of Crown Willamette into the Crown Zellerbach Corporation will be:

Elimination of dividend arrearages paving the way to unified earnings showing and presumptively regular dividends on preferred and common stocks.

Reduction of aggregate preferred dividend requirements and increase in common shares, including elimination of the old voting trust. Reduction in preferred dividend requirements will amount to approximately $301,275 annually.

Upon the final completion of the merger the Crown Zellerbach Corporation will have about $9,925,000 of funded debt, about $10,000,000 of present bank debt, some 529,660 outstanding shares of new $5 cumulative preferred (convertible) and about 2,261,375 shares of $5 par common stock, an increase of about 393,100 shares of common stock above the former number of no par value common shares of Crown Zellerbach outstanding.

Corporate History

In the Official Supplementary Statement of Information Relating to the Plan of Reorganization which accompanied the merger plan sent to each stockholder, appeared the following brief histories of the two corporations:

"Crown Zellerbach Corporation, organized under the laws of Nevada, is the outgrowth of a paper jobbing business established in San Francisco about 1870. For many years the principal business was conducted under the name of Zellerbach Paper Company. In 1924, Zellerbach Corporation was organized as a holding company and the business was conducted through various operating subsidiary companies. In 1928, at the time of acquisition of control of Crown Willamette Paper Company, the name was changed to Crown Zellerbach Corporation.

"Crown Willamette Paper Company, organized under the laws of the State of Delaware, is the outgrowth of a paper manufacturing business originally established in 1877. In 1914, the immediate predecessor to the present company was formed as a consolidation of several paper manufacturing companies and in 1915, control of Pacific Mills, Limited, was acquired. The present company was formed in 1926.

"In 1928, Crown Zellerbach Corporation acquired by an exchange therefor of its own stock, substantially all of the common stock of Crown Willamette Paper Company and, since 1929, has owned all of such common stock. Thereafter, while the companies maintained separate operations, the officers and board of directors of each has included persons who were also officers and directors of the other and substantially the same business policies and management have existed for both corporations.

"Since the close of the last fiscal year, April 30th, 1936, certain of the subsidiaries of each of the two corporations have been dissolved and their assets have been conveyed to and their obligations assumed by their respective parent companies (see Corporate Charts). The Plan of Reorganization is in furtherance of the policy of the management to concentrate operations to the greatest practicable extent in the Crown Zellerbach Corporation as the principal operating company."

Business of Merged Company

"The Merged Company (which, as used herein, means Crown Zellerbach Corporation after giving effect to the merging into it, as proposed, of Crown Willamette Paper Company), directly and through various of its subsidiaries, is engaged principally in the business of producing and selling paper and paper products. The enterprise is a "vertical" unit in the industry, that is, the Merged Company controls timber reserves and conducts logging, sawmill and shipping operations in addition to the purchase of logs, cordwood and slabs produced by others and the sale of logs, pulpwood and rough lumber to others; produces its own pulp requirements (although relatively small amounts of pulp are purchased from or sold to others); manufactures paper of various kinds; converts paper into paper products; and sells paper and paper products direct to consumers and through or to converters, jobbers and other agencies. The merged company is also engaged as a jobber in the sale of paper and paper products produced by others and by it. Other activities include operation of logging railroads, towing, barging and river transportation of wood supplies and finished products, factoring of mill supplies, ownership and management of industrial and commercial real estate and other activities, for the most part incidental to the main business of the merged company and its subsidiaries. The active subsidiaries of the Merged Company are engaged in one or more phases of the business described above or in activities related thereto.

LOUIS BLOCH
Chairman of the Board
Crown Zellerbach Corp.

Principal Products

"The principal products of the Merged Company and its subsidiaries are news print, coarse papers, kraft board, tissue papers and converted paper products.

"Coarse papers include sulphite and kraft wrapping paper, sulphite and kraft bag paper, bleached and unbleached sulphite and kraft specialties. Practically all grades of coarse papers are made including grades to serve specialized uses, such as butcher paper, cement bag paper, ham wraps, car liners, tire wraps, gumming paper, semi-transparent papers and waxing papers.

"Tissue papers include various grades, such as fruit wrapping paper, florists' tissue, toilet tissue, paper toweling and napkin paper.

"Converted paper products include paper bags, waxed papers, fruit wraps, laminated paper, paper towels and roll and inter-fold toilet tissue. Cellophane is purchased for printing and also for conversion into bags.

Production Tonnage

Production of paper and board, all grades, of the Merged Company including Pacific Mills, Limited, for the fiscal year ending April 30th, 1936, was: 492,396 tons, and, for the six month period ending October 31st, 1936, 263,616 tons.

Of the 1936 fiscal year production 200,627 tons was news print and groundwood specialties by the Merged Company and 63,582 tons by Pacific Mills, Limited; 122,077 tons by the Merged Company and 18,905 tons by Pacific Mills, Limited, of coarse papers; 32,876 tons by the Merged Company and 1,604 tons by Pacific Mills, Limited, of kraft board; 49,737 tons by the Merged Company and 2,988 tons by Pacific Mills, Limited, of tissue papers.

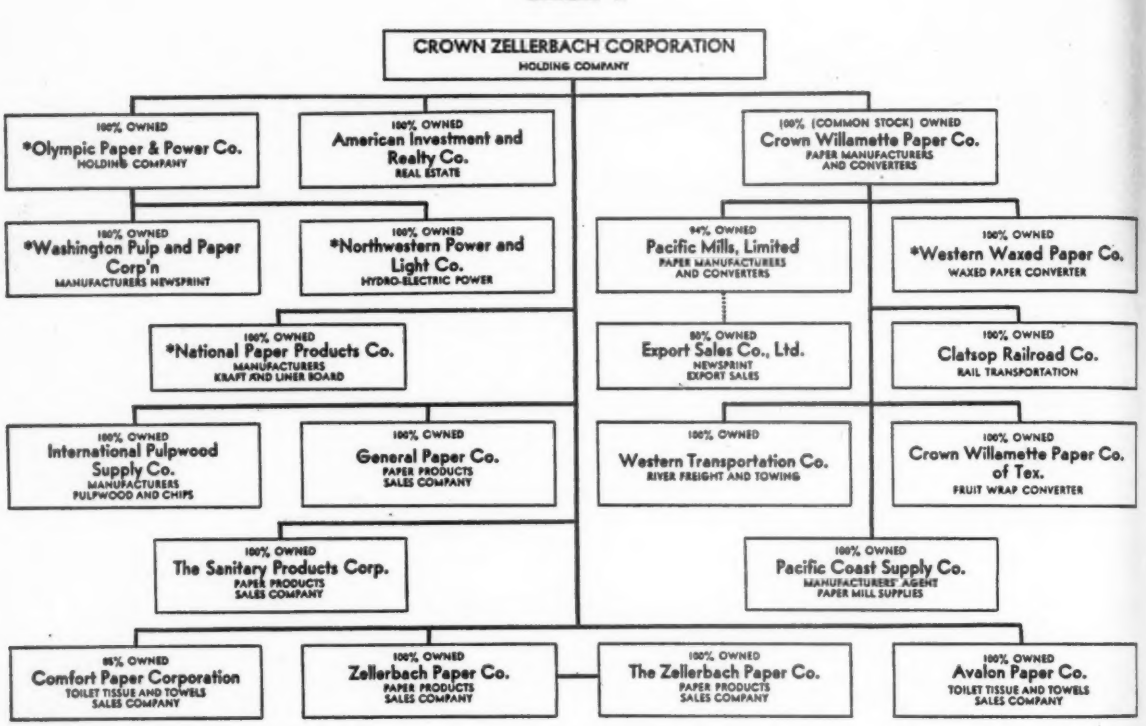
Fibreboard Products, Inc.

The Merged Company (Crown Zellerbach Corporation) as of October 31st, 1936, owned 39.7 per cent of $7 preferred stock, 44.1 per cent of the Class A common stock and 50 per cent of the Class B common stock of Fibreboard

The Crown Zellerbach Organization

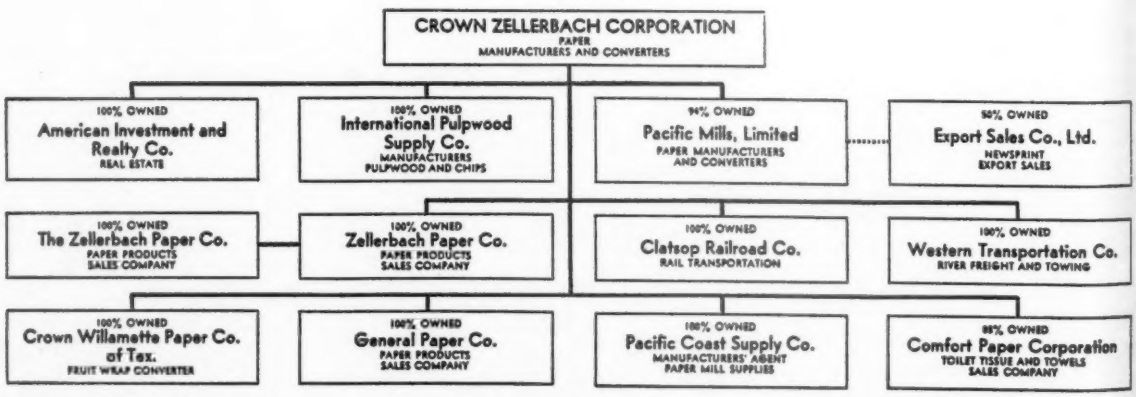
Chart I—Before Merger
Chart II—After Merging of Crown Willamette

CHART I

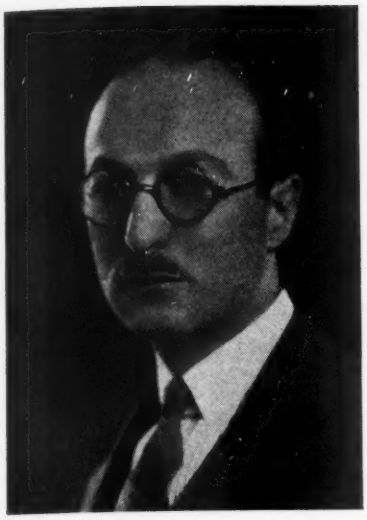


*Dissolved subsequent to April 30, 1936.

CHART II



The effect of the reorganization of the Crown Zellerbach Corporation, approved by stockholders on March 16, 1937, is shown in the above two charts which were included in the supplementary statement sent stockholders February 9th » » » Chart I is the corporate organization as of April 30, 1936 » » » Chart II is the corporate organization after giving effect to the merging into Crown Zellerbach Corporation of Crown Willamette Paper Company and the elimination of certain subsidiaries of both » » » Inactive subsidiaries, or subsidiaries not materially important from the standpoint of either assets or earnings, are not included in either chart.



J. D. ZELLERBACH
Executive Vice-President
Crown Zellerbach Corp.

Products, Inc., which was carried in the Crown Zellerbach balance sheet as worth $5,614,541.25. The Paraffine Companies are the other principal owners of Fibreboard stock.

Fibreboard Products, Inc., and subsidiaries constitutes a vertical unit, operating its own waste paper plants on the Pacific Coast and engaged principally in the manufacture of boxboard, strawboard, fabrication of corrugated and solid fibre shipping cases, folding and set-up boxes, cartons, oyster and ice cream pails, paper tubes and cans, fibre wallboard, egg case fillers and other paper products and glass containers and the sale of such products.

Fibreboard Products, Inc., purchases from Crown Zellerbach the entire output of one kraft mill unit (Port Townsend board machine) and a portion of its wood supply and other wise carries on a regular course of business with the Merged Company, including purchase from the Merged Company of certain products of the Merged Company and sales to the Merged Company of its products.

Fibreboard Products, Inc., operates throughout the same general territory as that in which the principal operations of the Merged Company are conducted. The principal plants of Fibreboard Products, Inc., and its subsidiaries are located at Stockton, Antioch, Vernon, Southgate, Los Angeles and San Francisco, California, Port Angeles and Sumner, Washington, Portland, Oregon, Honolulu and Kahului, Hawaii, Philadelphia, Pennsylvania and Baltimore, Maryland.

New Wallgren Bill Offered

Late in March Representative Monrad C. Wallgren of Everett, Washington, introduced a new bill to enlarge the boundaries of the Mt. Olympus National Monument on the Olympic Peninsula.

This new measure represents a form of compromise between the so-called conservation interests headed by New York people, the National Park Service and backed by Port Angeles residents and opposed by residents of the Grays Harbor country, supported by the Forest Service.

While the new measure would take in less commercially valuable timber than the original Wallgren bill introduced a year ago, it still embraces much timber which would normally be utilized by the lumber and pulp industries in providing employment for Olympic Peninsula men and women. It would nearly double the present area of the monument making it a 600,000 acre wilderness area.

It was reported in the press that the new Wallgren bill would move the north boundary of the monument to embrace an area of approximately sixty-four square miles including Lake Crescent, Boulder Peak and Sol Duc Hot Springs. Roughly the bill proposes that the monument boundary be moved six miles to the west, seven to the south and two to the east.

Approximately 140,000 acres of timberland have been removed on the west side from the original proposal, the monument would still include forests at the headwaters of the Bogaschiel, Calawah and Hoh rivers.

The bill would make a rectangular extension fourteen miles long and five miles wide to include these streams.

Under the new plan the southwest corner of the monument would be ten miles north of Lake Quinault, while, in the original bill the west boundary line ran south to Lake Quinault, three miles west of the southwest corner of the proposed park.

The Wallgren bill is now before the public lands committee of the House of Representatives.

The original Wallgren bill was opposed by the Forest Service of the Department of Agriculture as unwise from a public point of view but was strongly supported by the National Park Service of the Department of the Interior as a permanent wilderness area beneficial to the public from the standpoint of recreation. Opponents pointed out that the territory embraced is not suitable for recreation ten months of the year due to the exceptionally heavy rainfall which produces the rapidly growing forests of the Olympic Peninsula.

Coastwise Line to Handle CZ Freight

The recently organized Coastwise Line, operating six ships purchased from Swayne & Hoyt between Pacific Northwest and California ports, will handle approximately 300,000 tons of freight annually for the Crown Zellerbach Corporation, according to press reports.

Rumors that the Crown Zellerbach was financially interested in the new steamship line were publicly denied in March by I. Zellerbach, president of Crown Zellerbach, who said that the relationship was purely a contractual one. Crown Zellerbach has contracted with the Coastwise Line to handle shipments of paper from Northwest paper mills to California ports and supplies from California to the mills.

The Coastwise Line will work in collaboration with the Panama-Pacific Line, intercoastal freight and passenger carriers.

Crown Zellerbach Postpones Announcement

Following the announcement by the International Paper Company of a price of $50 per ton for news print for the first half of 1938, the Crown Zellerbach Corporation issued a statement saying the company did not think it advisable to state a definite 1938 price at this time.

"It has been customary for us to announce our price on newsprint in the fall of each year as we are then in a better position to determine our course for the following year, based on anticipated costs, sales and competitive conditions. We believe these latter considerations to be especially important in view of rapidly increasing costs for raw materials, manufacturing, transportation, etc. For these reasons we deem it inadvisable to make a definite announcement on our newsprint price for 1938 at this time.

"Newsprint has been selling at unreasonably low prices since 1933 which cannot be continued in the face of the substantial increases in costs already experienced and the still further increases in prospect.

"We are informed that the principal eastern Canadian mills have announced a price of $50 for the first six months of 1938 and it is our opinion that, under existing conditions, this price is fully justified."

Mills Pay Heavy Taxes

It was reported in the Grays Harbor press that the Grays Harbor Pulp & Paper Company paid the second largest taxes of any industry in the Harbor area, between $69,000 and $70,000, which was paid to the county treasurer. The Polson logging Company paid the largest sum, $84,171.91. The Weyerhaeuser Timber Company was third with $62,000.

To the treasurer of Clark County, Washington, the Crown Zellerbach Paper Company, Division of Crown Zellerbach Corporation, paid $86,142.42 for its mill at Camas, Washington. This was the largest single tax payment in Clark County.

More Accurate Import Statistics

The Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce announced March 12th that, "Hereafter United States import statistics released by the Department of Commerce will show the actual country of origin rather than the country from which the goods were invoiced, as has been the case in the past."

While the above will have little or no effect on pulp import statistics, the new policy may bring about changes in the imports records of paper, particularly specialties.

Join Superintendents Association

George J. Witham, Jr., of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, whose home is in Portland, recently joined the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association, as did John A Larson, pulp mill foreman of the Inland Empire Paper Company, Millwood, Washington.

B. C. Pulp Shows 1936 Profit

Instead of a deficit—which in 1935 amounted to more than $250,000—British Columbia Pulp & Paper Company reported a net profit of $15,213 on last year's operations. There was a general pickup in the company's business, marking recovery after several years of depressed markets and low prices.

Operating profits and other income advanced from $307,854 in 1935 to $619,333 last year. Bond interest absorbed $319,717, depreciation $238,000 and income tax $12,000. The deficit carried forward was reduced to $1,073,163 from $1,088,377.

Current assets of $1,048,812 exceeded current liabilities of $253,942 for a net working capital of $794,870, a decrease of $35,312 from December 21, 1935.

"The demand for pulp and paper products, generally, throughout the world markets has improved," says President Lawrence Killam, "and during the latter part of 1936 prices started to increase somewhat. The custom of making sales in advance retards the benefit from better prices, but the outlook for the coming year is that increases in prices received will continue to exceed increases in cost of manufactures and shipping already in evidence."

In his annual report Mr. Killam makes brief reference to the extension of the facilities at the Woodfibre and Port Alice mills for the manufacture of bleached sulphite pulp, for which there is a better market now.

"The capital expenditures made have brought an improvement in the quality of the company's products at both operating mills," said Mr. Killam, "and will assist in offsetting the tendency to higher costs."

Mr. Killam points out that it is intended to proceed with further changes in the type of product manufactured in order to widen the available markets and further protect the steady operations of the company, but he is not in a position to discuss these plans in detail at present.

The company retired $118,000 of six per cent first mortgage gold bonds. Mr. Killam points out that sale of $100,000 par value of the company's own 6 per cent bonds, and sale of $130,000 par value of Dominion government guaranteed bonds contributed to the year's profits.

Pulp Union Meets in Chicago

The seventeenth biennial convention of the International Brotherhood of Pulp Sulphite and Paper Mill Workers was held in Chicago March 15th-19th. Delegates from all Pacific Coast local attended. John P. Burke, president of the brotherhood, presided at the sessions.

A number of prominent labor leaders addressed the delegates including Mathew J. Burns, president of the International Brotherhood of Paper Makers.

In his opening address President Burke outlined the organization of Pulp, Sulphite and Paper Mill Workers union and stressed the constructive work it had performed since the first convention was held in 1902. Mr. Burke was concluding his twentieth year as president of the union and in appreciation for his services the convention delegates presented him with a traveling bag. Mrs. Burke, who has worked closely with her husband, was presented with an overnight bag and a large bouquet of flowers.

The convention voted to remain with the American Federation of Labor, turning down the offer to join John L. Lewis' Committee for Industrial Organization. The convention urged the A. F. L. and the C. I. O. to get together and settle their differences in the interests of a united labor front.

A resolution was passed asking the American Federation of Labor to grant the International Brotherhood of Pulp, Sulphite and Paper Mill Workers jurisdiction over all workers in pulp and paper mills and converting plants except those covered by the jurisdiction of the International Brotherhood of Paper Makers.

Another resolution was passed calling for a flat 15 cents per hour increase for all male employes and a 20 cents an hour flat increase for all women employes.

A vacation resolution was also adopted calling for one week's vacation with pay for employes of over three years service, and two week's vacation with pay for those having 10 years or more service to their credit.

President Roosevelt's move to increase the size of the Supreme Court was approved by the convention.

Several resolutions were passed calling for the placing of more union representatives in the field to organize unorganized workers in the pulp and paper industry. As this program will necessitate large expenditures a resolution calling for a reduction in the per capita tax paid by locals to the international was defeated as an unwise move.

All officers were reelected: John P. Burke, Fort Edward, New York, president and secretary; Maurice La Belle, Ottawa, Ontario, first vice-president; H. W. Sullivan, Worcester, Mass., second vice-president; J. W. Taylor, Topsham, Maine, third vice-president; William H. Burnell, Espanola, Ontario, fourth vice-president; S. A. Stephens, Thorold, Ontario, fifth vice-president; Raymond A. Richards, Wisconsin Rapids, Wisconsin, sixth vice-president, and John Sherman, Port Angeles, Washington, seventh vice-president.

Bart Doody, Palmer, N. Y., was reelected treasurer, and George C. Brooks of Franklin, N. H., was reelected auditor.

Erickson Coast Visitor

Harold A. Erickson of Stockholm, Sweden, director of foreign sales of the Svenska Flaktbriken (Swedish Fan Manufacturing Co.), was on the Pacific Coast late in March and early in April calling on pulp producers in the interests of his pulp drying machine. He was accompanied by his Pacific Coast representative, A. H. Lundberg of Seattle.

Flintkote Sales Make Big Gain

I. J. Harvey, Jr., president of the Flintkote Company, roofing manufacturer, told stockholders at the annual meeting in Boston that as a result of efforts to spread operations more evenly over the year by greater diversification of products earnings for January and February this year were $183,771, in contrast with a loss of $20,391 for the 1936 period. Net sales were 51 per cent higher at $2,434,582.

The stockholders approved a recommendation of the board to reserve 10,000 share of stock for issuance to employes from time to time as additional compensation.

Certain-teed Has Big 1936 Loss

The report of the Certain-teed Products Corporation and wholly owned subsidiaries for 1936 shows a net loss of $571,250 as compared with the 1935 report of a net income of $259, 978.

Certain-teed's portion of the net income of the Sloane-Blabon Corporation (floor covering manufacturers) amounted to $107,363, but was not included in Certain-teed's report.

President W. G. Baumhogger of Certain-teed reported that sales volume and earnings to date in 1937 are substantially better than in the comparative 1936 period.

Production Ratios Up

Monthly production ratios based upon paper production reports to the American Paper & Pulp Association showed a ratio to capacity of 90.3 per cent for January, 1937, as compared with 76.1 per cent for the same month in 1936 and 65.8 per cent for January, 1935.

February, 1937, showed 90.1 per cent of capacity as compared with 77.9 per cent for February, 1936, and 70.0 per cent for the same month in 1935.

Nineteen thirty-seven ratios have been adjusted to correspond with ratings reported on January 4th, 1937, in the Machine Improvement Survey.

Declares Dividend

Fibreboard Products, Inc., directors declared on March 19th a regular quarterly prior preferred dividend of $1.50 payable May 1st to stock of record April 15th.

Standardizing Fruit Containers

During the latter part of March the Freight Container Bureau of the American Association of Railroads held hearings in Wenatchee, Washington, for the purpose of attempting to standardize the sizes of fruit and vegetable containers and for arriving at standard methods of loading, bracing and bulkheading. The Wenatchee hearing was one of many being held throughout the country in fruit and vegetable shipping districts.

The hearing included a study of covered wooden and fibreboard boxes for apples, apricots, cherries, peaches, pears and prunes, also standard lugs, baskets, bags and hampers.

Alberts Joins Sumner Iron Works

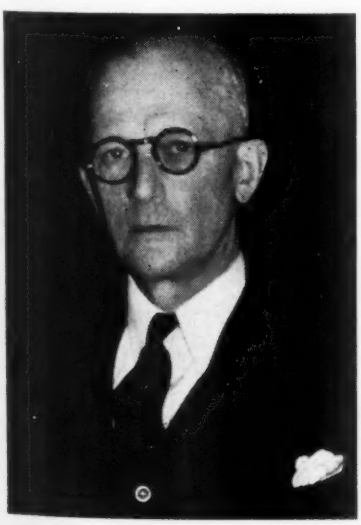
John N. Alberts has joined the Sumner Iron Works as a sales engineer in the pulp, paper and sawmill industries, according to an announcement by E. I. Flateboe, general manager of the company.

Mr. Alberts is well known in both industries, having lived on the Pacific Coast since 1913. He was with the Allis Chalmers Manufacturing Company for a number of years, spending four years in London and made a year's trip around the world in the interests of Allis Chalmers equipment.

From 1922 until 1934 Mr. Alberts was with Allis Chalmers in the Seattle district office and he was Northwest manager from 1927 until 1934 .

A mechanical engineering graduate of Vanderbilt University, Mr. Alberts has had a varied experience in the electrical, sawmill, pulp and paper, mining and cement industries.

His new work with the Sumner Iron Works will make his experience available to the pulp and paper industry in the Pacific Northwest.



JOHN N. ALBERTS
Sales Engineer
Sumner Iron Works

Foresters Plant 215 Million Trees

Of approximately 215,000,000 trees planted during 1936 by the Forest Service on National Forests in 26 states, only 14,065,000 were in the states of California, Oregon, Washington, Idaho and Montana. The tree planting was the greatest reforestation program yet recorded, claims the Forest Service, topping the record of 1935 by more than 60 per cent.

Tree nursery production was geared to meet the demand. During 1936, more than 237,500,000 tree seedlings, including those furnished cooperating agencies, were produced by 15 Forest Service nurseries in 11 states.

Nearly 90 per cent of the total planting was done in National Forests in the Lake States and in the South. The Forest Service's Region 9, which embraces Illinois, Indiana, Michigan, Minnesota, Missouri, Ohio, North Dakota and Wisconsin, reported the reforestation of 141,478 acres, which represents the planting of more than 140,000,000 trees. In Michigan alone, some 78 million trees were planted. Wisconsin was in second place with some 40 million trees planted on its National Forests. Major species planted in the Lake States region were Norway and Jack Pine.

In the South, where approximately 55 million trees were planted, Louisiana and Mississippi each reported the planting of approximately 22 million trees—mainly longleaf, slash and loblolly pine —on National Forest land within their boundaries during the planting season which ended in the spring of 1936.

Because of climatic conditions tree planting in the Southern States begins in the fall and extends into the early months of the following year. By April 1 of this year, it is estimated that more than 62,000 acres will have been reforested in the South—representing an increase of some seven million trees over 1936 plantings.

The 1936 planting program in the National Forests west of the Great Plains saw the reforestation of nearly 20,000 acres, requiring approximately 19 million trees. Five million were planted in Idaho; National Forests of Washington and California reported the planting of 3,000,000 trees each. Colorado, Nebraska and Montana were next, in the order named, with plantings ranging from 2,500,000 to 1,400,000 trees.

In the East, West Virginia and Pennsylvania National Forests received well over a million trees each; about a half-million were planted on National Forest land in New Hampshire.

Planting crews were for the most part young men from the Civilian Conservation Corps camps on National Forests, trained by Forest Service officers. A substantial number of WPA workers also were used. Field crews planted at the rate of one-half to one acre per man per day, according to the type of planting carried out and the nature of the terrain.

Michigan led in the output of tree seedlings from Forest Service nurseries. Production from Chittenden Nursery, the largest in the nation, was 57,667,000 trees. Wisconsin's Hugo Sauer Nursery produced close to 25 million. The Beale, Wyman and Watersmeet Nurseries each produced close to 15 million trees. In the South, the Stuart Nursery in Louisiana reported the production of nearly 30 million trees, and the newly established W. W. Ashe Nursery in Mississippi produced 22 million trees.

The Ozark Nursery in Arkansas produced 3,456,000; the Parsons Nursery of West Virginia, 2,326,000. In the Western States, the Monument Nursery of Colorado, the Bessey in Nebraska and the Wind River in Washington, all topped the two million mark. The Susanville Nursery in California turned out close to a million trees for planting in that state.

In addition to those used on National Forest reforestation programs, trees were shipped by several of these nurseries to federal and state agencies for planting on state forests, resettlement projects, Army and Navy reservations, and other cooperative projects.

The heavy planting program carried on in the Southern and Lake States was due, the Forest Service said, to the extensive federal acquisition program in those regions during the past few years. Much of the forest land thus acquired for National Forests has been denuded in the past by heavy logging and repeated burnings. The first task of the Forest Service in its administration of these newly acquired areas is to protect them against fire and launch reforestation so that they may once again produce timber and other forest products.

The following table gives the acreage planted on National Forests by states during the calendar year 1936. Number of trees planted is roughly 1,000 per acre.

Arkansas	4,814
California	3,202
Colorado	2,519
Idaho	5,384
Illinois	1,759
Indiana	839
Louisiana	23,278
Michigan	78,197
Minnesota	11,710
Mississippi	22,597
Missouri	8,275
Montana	1,442
Nebraska	1,770
New Hampshire	576
North Carolina	144
Ohio	326
Oregon	971
Pennsylvania	1,223
South Carolina	501
South Dakota	845
Tennessee	101
Texas	3,623
Washington	3,066
West Virginia	1,431
Wisconsin	40,372
Wyoming	219
Total	219,185

Rosin From Sulphate Pulp

The Bureau of Foreign & Domestic Commerce, U. S. Department of Commerce, reports that, "In line with the national policy of reducing dependence upon foreign countries for essential raw materials, Germany is now recovering liquid rosin as a by-product from sulphate pulp manufacture. Two plants now in operation are recovering liquid rosin at the rate of 1,000 metric tons per annum and plans are being made to construct additional units int he near future. Germany's imports of liquid rosin amounted to 11,382 metric tons in 1936, all of which came from Sweden and Finland.

Supers Plan Springfield Meet

The annual meeting of the American Pulp & Paper Mill Superintendents' Association will be held in Springfield, Massachusetts, June 23, 24, 25th. W. Gordon Booth is general chairman of the meeting.

The success of the machinery and supplies exhibit at the Grand Rapids convention a year ago has brought about the development of plans for an even larger Paper Progress Exhibit at Springfield, according to Leonard P. Taylor, chairman of exhibits.

All events of the convention will be held under one roof including the Paper Progress Exhibit, in Springfield's large Industrial Arts Building on the Eastern States Exposition Grounds just outside of Springfield.

Besides a program of papers covering various phases of pulp and paper making, plans are under way for an entertainment schedule which will provide much fun for those attending the convention.

On Wednesday, June 23rd, there will be a golf tournament at the Springfield Country Club followed by a Down East Shore Dinner. Thursday and Friday luncheons will be held in the banquet hall in the Industrial Arts Building. Thursday evening the banquet and dancing will be seld on the Commons in Storrowton, with an old-time fiddler and band.

The ladies will be royally entertained, the center of activities being Storrowton, a New England village adjacent to the Industrial Arts Building, comprising real colonial structures dismantled and moved to their present site, piece by piece. There will be motor coach visits to Amherst College, Massachusetts State College, Smith College, as well as trips through the foothills of the Berkshires.

More than a 1,000 hotel rooms are available in Springfield with rates on a moderate basis, according to the convention committee.

Reservations should be made early and addressed to Convention Headquarters, 134 Chestnut Street, Springfield, Mass.

Geological History In Well

The new deep well recently completed by the Rainier Pulp & Paper Company of Shelton, Washington, revealed interesting geological data on the Puget Sound area.

A log was kept of the formations encountered in drilling the 735 foot deep well. It is the largest and deepest of the six wells drilled in Shelton, five for the pulp company and one for the city. It is 28 inches in diameter down to the 436 foot level and 20 inches in diameter from there to the bottom.

The Mason County Journal reports the drilling operations as follows:

"It is generally considered that this is a glacial country covered by the sea in the beginning and only coming "to earth" in successive upheavels on one hand and glacial overflows on the other, and the different stratas of formation mark the eras during which the land was built up out of the sea.

"This well goes down to the depth of 735 feet and a log was kept of each formation as it was passed until the record shows clearly the several gravel stratas which contain water and the separations of shale and silt which during the several periods covered over the gravel strata until the next flow came along perhaps thousands of years later.

"At that it is generally considered that this country is the newest of all on the American continent, and last of the built-up earth to show above the surface on the Pacific slope.

"The steel casing has been perforated at the nine water-bearing levels with the prospect that the well will be an artesian or natural flowing well, but in order to secure volume and all possible water a big electric pump will be seated in the well to boost the flow.

"This will be done as soon as the well is finally cleaned out and an underground reservoir developed, after which the water will be ready for piping to the mains at the mill with which connection is now being made.

"The largest water-bearing gravel stratas were found as follows: From 351 feet to 396; 436 to 467 feet, 492 to 538 feet, 585 to 641 feet, and 676 to the bottom at 735 feet. The drilling stopped at this level when the drill struck the first real hard shale encountered, although blue clay, hard shale and sand stratas separated each of the gravel stratas, and in most cases were apparently hard enough to seal off the gravel stratas. With several wide gravel beds to draw from, all of which have been tapped into the well, it is expected to be the best producer of all."

Sherman Again Elected Vice-President

John Sherman of Port Angeles, was re-elected vice-president of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers at the convention in Chicago, which closed March 20th.

Besides being actively engaged in union work, Mr. Sherman was a member of the House of Representatives of the Washington legislature.

Dr. Benson On Official Trip

Dr. H. K. Benson, executive officer of the Department of Chemistry and Chemical Engineering, University of Washington, made an eleven-day trip early in March in the interests of the Engineering Council for Professional Development. The object of Dr. Benson's trip was to inspect and examine the various branches of engineering in a number of schools and colleges in North and South Dakota and Nebraska, and to report to the Engineering Council the results, with a view to accrediting those not at present accredited and to check up those now accredited.

Dr. Benson is a member of the committee doing this work for the Engineering Council in Area 7, comprising Washington, Oregon, Idaho, North and South Dakota and Nebraska.

The committee is now engaged in inspecting institutions of learning in Oregon, Washintgon and Idaho.

Dr. Benson is also the representative in this district for the American Institute of Chemical Engineers.

China Dependent Upon Paper Imports

In spite of the fact that the paper-making industry in China is protected by a heavy import tariff, and despite numerous plans and projects for the construction of new and up-to-date mills, small progress has been made to date. Although it is claimed that modern paper could be manufactured in China by using bamboo pulp, of which the country has ample supply, no serious attempt has yet been made to erect such a mill. Reasons for this delay are undoubtedly the heavy expense entailed in putting up such a mill, as well as the fact that chemicals necessary for paper-making would also have to be imported.

Total imports of paper and paperware in the Shanghai district during 1936 were valued at $10,606,438 (U. S. currency), the United States share in this trade amounted to $1,487,403. The largest item was drawing, document, bank-note and bond paper, of which the United States easily leads all other countries. Imports of this particular item from the United States during 1936 were valued at $481,076, representing 84 per cent of the total paper imported from this country. The United States has of late been able to obtain a reasonable share of the import trade in printing paper free of mechanical wood pulp. The principal source of supply of ordinary printing paper, including newsprint, have been Finland, Sweden and Norway, but during the last year or so Germany has come to fore as a leading competitor in this trade. European manufacturers consistently quote lower prices for newsprint and other ground wood papers than American manufacturers apparently can meet. The United States supplied during 1936, $144,112 of this class of paper, representing 26 per cent of the total paper imports from the United States. (Consul General C. E. Gauss, Shanghai)

Felix Pagenstecher Dead

Felix Pagenstecher, well known paper mill executive, died in New York on March 15th of a brain tumor, at the age of 56 years.

Mr. Pagenstecher became president of the Hawley Pulp & Paper Company at Oregon City in 1931 and remained about a year, leaving when the Western Cooperage interests acquired control.

He was born in Chicago and started his career in the paper business with his father, Carl Pagenstecher, at the age of 16.

In the early days of his life in the paper industry, Mr. Pagenstecher was with the Riverview Coated Paper Company of Kalamazoo, Michigan, becoming president in 1903 and remaining until 1919. From 1919 until 1931 he was president of the Bryant Paper Company of Kalamazoo, leaving to become president of the Hawley Pulp & Paper Company.

Mr. Pagenstecher left Oregon City to become vice-president of Nekoosa-Edwards Paper Company of Port Edwards, Wisconsin, leaving early in 1935 to accept a position as vice-president in charge of sales of the International Paper Company in New York.

Coast News Print Mills Raise 1938 Prices

Costs Rising Rapidly

Powell River Company and Pacific Mills, Ltd., the two big British Columbia newsprint companies, have set $50 a ton as the base price for their product for the first six months of 1938.

The announcement was first made by Harold S. Foley, executive vice-president of Powell River, who said that the new base price would be f.o.b. Powell River, with water freight allowed to Pacific coast and Gulf ports.

Harry Pym, sales manager of Pacific Mills, said that his company would adopt the same price policy, although the freight allowance to Gulf ports would not be applicable as Pacific Mills does no business in that territory.

Mr. Foley's announcement was in line with the program adopted by a majority of the large eastern newsprint mills, led by International Paper Company, which fixed $50 as the price for New York, Chicago and Atlantic and Gulf ports delivery.

The current price is $42.50 and while the $7.50 advance represents the biggest boost in many years and considerably in excess of all the increases announced since the depression low of $40, newsprint men on the Pacific Coast say that an even higher price would be justified by the rapid stepping-up of production costs.

Announcement of price changes on new contracts are usually made in the early fall, but because of the relatively high jump the mills thought it wise to give their customers as long a time as possible to prepare themselves for the change.

'By the time 1938 arrives, we may find that we have gained very little if anything," stated a Powell River executive, in pointing out that the mills in British Columbia, as in other producing territory, have been faced by steadily mounting costs.

Hemlock, used extensively in newsprint manufacture, has increased from $8 to $14 a thousand feet during the past two or three months, and there ahs been a similar rise in spruce prices. The fact that hemlock is finding a readier market overseas as lumber has been a factor in raising the price of that species. British Columbia lumbermen and the provincial government have been pushing hemlock sales as a means of reducing the heavy excess cut of Douglas fir in proportion to availability in the forest.

Wages in British Columbia newsprint mills are now the highest in history, according to officials of Powell River and Pacific Mills. Powell River, for instance, increased wages 5 per cent early this spring, but there had previously been two upward wage adjustments since the depression, and the general average increase since the low is figured at about 20 per cent.

Loggers' wages have been increased about 10 per cent since the long winter shut-down. This has been directly reflected in increased costs of pulpwood logs. While the newsprint mills in British Columbia produce a large proportion of their own logs, they have to buy heavily in the open market and the cost of their own logging operations has advanced relatively as much as that of independent operators. To add to the cost and the difficulty of maintaining a steady flow of pulpwood, there has been the worst log shortage in British Columbia in twenty years. There is no suggestion of a timber famine, but facilities for getting the raw material to the mills have been slowed up, chiefly due to the unprecedentedly bad weather.

Increase in the price of steel and other commodities has resulted in a steep upward trend in cost of all mechanical equipment.

"The biggest problem of the newsprint mills on this coast right now is tonnage," said William Barclay, manager of Powell River Sales Company, selling organization interlocked with the Powell River Company. "Due to the long maritime tie-up down the coast, freight has backed up to such an extent that deliveries have been seriously handicapped to certain markets. When tonnage is available it costs an average of 20 per cent more than it did at the end of last year."

While $50 will be maintained in the domestic market for the first half of next year, the export market will continue to pay much higher than the base figure. The indications are for a continuation of the sellers' market in newsprint, with increasing demand, and publishers with contracts will be in a very happy position, even at the new price, by comparison with those who must get their newsprint where they can.

Eastern newsprint mills admit there is an element of doubt as to their ability to make the new price "stick," and they recall the price record of the last three years. In 1934 an attempt to raise prices was effectively shattered by St. Lawrence Paper Mills which made contracts for 1935 at the old price. In 1935 Great Northern upset the apple cart by announcing a price advance of only $1 a ton when the other producers were preparing to seek a considerably higher figure. Again in 1936 the same company took the lead by advancing the price $1.50 a ton, to the current level.

In the last two or three years considerable progress has been made by eastern Canadian mills in getting rid of interlocking price contracts whereby any one mill with an annual tonnage of more than 100,000 tons could fix the price for the rest of the industry.

Even if a mill like Great Northern should decide to sell newsprint for less than $50 a ton next year, it is estimated that only between 3 and 5 per cent would be affected by interlocking contracts. In other words, the current contract position is such as to enable the other manufacturers to ignore any one firm's price policy.

In its price announcement International stated: "Although some foreign markets are already bidding higher, the company hopes the domestic market will be stabilized at this level."

This is taken to indicate that there will not be any runaway price policy for the second half of 1938. With $50 considered as the economic base price any further increase will be based on the rise in raw materials, labor costs and manufacturing expenses.

The last two price advances have been pretty well absorbed by advancing costs. The improved showing of the newsprint companies has been due primarily to increased production. The $7.50 advance for next year, it is hoped, will allow something to be credited to net earnings. One estimate is that $5 of the $7.50 may show up in net profits, but most coast operators, conscious of the trend of costs, are skeptical of that figure.

Fifty dollars a ton is a long way from what consumers will ultimately have to pay for their newsprint, thinks Lord Rothermere, famed British publishers and holder of large newsprint and pulpwood interests in eastern Canada and Newfoundland.

In a cable from London Rothermere says that although newsprint possibly consumed more pulp than any other cellulose product its consumption is being rapidly overtaken by other and more rapidly growing products of cellulose for all kinds of purposes because its manipulation is so facile.

"For the second six months of 1938 I anticipate a price something like $57 a ton, which is preparatory to a price of $65 for 1939," says Rothermere. "A price of $65 is not unusual or excessive. In 1925 the price in Canada was $75, although then there was nothing like the insistent demand for other than newsprint purposes that there is today. Demand has definitely overtaken supply and if there is no major international disturbance there is nothing that can avert an acute shortage in five years' time.

British Columbia newsprint men are inclined to think that Rothermere is a little extravagant in his estimate, although admitting that some of his predictions in the past have been pretty accurate.

Publishers Resent News Print Increase

Newspaper publishers throughout the United States were quick to resent the price of $50 per ton for the first six months of 1938 set by the International Paper Company, which was quickly followed by a number of other large producers including Pacific Coast organizations.

Publishers took no cognizance of increased costs of production faced by news print producers, looking as usual at the price situation from their own viewpoint.

Editor & Publisher reported that the increase of 17½ per cent would mean, if maintained, an added cost of $30,000,000 to newspapers in the United States during 1938.

The American Newspaper Publishers' Association immediately issued a statement playing down the effectiveness of the price increase and urging members to reduce the size of their papers by using smaller heads and smaller body type, reduction in features, condensation of news, elimination of promotion copies, more rigid rules pertaining to returns and fewer editions.

"Every time," says the ANPA statement, "you can reduce your newspaper by two pages, you will save the use of a ton and a half of news print for every

100,000 copies that you print."

"Publishers should also lend their support to bringing in new production of newsprint," the ANPA statement recommended. "Whenever you learn of an old news print mill that wants to resume production, do your best to buy tonnage from it. Aid the development of Southern news print with actual commitments."

The American Newspaper Publishers' Association has functioned with remarkable efficiency in holding the price of news print down for a number of years, aided by a divided news print producing industry which suffered from excess capacity during the past few years. It has been a buyers' market but now that consumption is up to production the sellers are in a position to raise prices to a profitable level, or to a nearly profitable level. However, as the ANPA statement points out there is still much time before the $50 price becomes effective and all of the producers have not been heard from, including Great Northern, who set the price for 1936 and 1937, and St. Lawrence who set the price in 1935.

The ANPA statement to publishers as it appeared in Editor & Publisher, follows:

"Because the $50 a ton price announced represents an increase of more than 17½ per cent, there are reasons to believe that perhaps bona fide transactions will be closed at much lower figures. Some good reason must be given United States publishers as to why they should pay $50 a ton for news print in 1938, when it is known that commitments were closed last year in England for deliveries during 1937 and 1938 at a price equal to about $42.50 a ton. International itself is believed to have made commitments at this price in England.

"The spokesman of the Newsprint Association in Canada only recently warned of the dangers of extreme prices. We quote him:

" 'Extreme prices would probably lead again to an orgy of promotion and expansion such as this industry experienced in the period from 1925 to 1930, with the inevitable consequences from which we are just now beginning to escape.

" 'The sound course for the industry and its customers is to avoid extremes, either on the up side or the down. This industry is just emerging from one downward extreme, with its attendant waste and human misery; let us not set the stage for another by permitting an upward extreme to develop, even though the required restraint runs contrary to natural inclinations.

" 'Moderation and restraint, and adequate price, sensible selling methods, constant effort for new efficiency of production; these should be the guiding principles of an industry supplying a world commodity in a world market under world competition. No news print producer should allow himself to forget that extreme prosperity, especially news print prosperity, carries with it the seeds of its own destruction.'

"It is hoped that there are managements in the news print industry who will heed this warning of their spokesman.

"Nevertheless, the announcement of the International Paper Company must be heeded by publishers as a warning to begin planning for conservation of news print. Consumption may be curtailed by the reduction of features, the judicious condensation of news, the elimination of many office promotion copies, a more rigid rule pertaining to returns and fewer editions. Perhaps it may be expedient to hold up the trend towards larger type faces, especially in view of the general improvement of illumination, finer reproduction and better quality paper than ever before. Every time you can reduce your newspaper by two pages, you will save the use of a ton and a half of news print for every 100,000 copies that you print.

"Publishers should also lend their support to bringing in new production of news print. Whenever you learn of an old news print mill that wants to resume production, do your best to buy tonnage from it. Aid the development of Southern news print with actual commitments.

"Another angle to the International Paper Company announcement is, that it is only for the first six months of 1938. From a publisher's standpoint, this is not sound. The newspaper business is dependent for its revenue on yearly advertising contracts, which are not subject to periodic adjustments. This is a necessary practice, because advertisers make annual appropriations for their advertising programs.

"We do not believe that the International announcement was either timely or constructive. We do believe that chaotic results can only be averted by publishers maintaining a balanced mind pertaining to their purchases and signing of contracts over the next four or five months, or until the reaction of the newsprint industry is known."

Newspaper Publishers Go Patriotic

The $50 news print price for the first half of 1938, recently announced by the International Paper Company and followed by a large number of other producers, brought forth strong talk about immediate development of a large news print industry in the Southern states.

In the March 27th issue of Editor & Publishers a number of statements by Southern newspaper publishers were printed. Quoting the statements in Editor & Publisher:

"Clark Howell, publisher of Atlanta Constitution: 'While most publishers were expecting an increase in news print prices for 1938, the enormity of the increase plus other added costs will make operation difficult next year. The prospects for erection of Southern news print mills has been given a tremendous impetus by this price increase and in my opinion it marks that beginning of the era when news print mills will be placed throughout the South which will eventually produce sufficient tonnage to meet this country's entire requirements.'

"James G. Stahlman, chairman of News Print Manufactures Committee of the Southern Newspaper Publishers' Association: ""The price announcement of $7.50 per ton increase on news print made by the International Paper Company for 1938 emphasizes all the more clearly the necesstiy for the development of additional news print mills in the South and likewise the awakening of the publishers of America to the further necessity of bringing the news print industry within the confines of the United States. We already have one mill going up in East Texas and before many years we should have other units throughout the various sections of the South. The proposed price increase, while unreasonable, should provoke the interest of publishers as well as capital in the immediate erection and operation of additional news units in this section of the country.'

"Clark F. Waite, president Southern California Associated Newspapers (I. C. Copley group): 'There is no justification whatever for an increase in domestic price of news print to American publishers so long as Canadian mills sell paper oversease in competition with Scandinavian mills offering news print CIF United States ports at a differential of seven dollars under domestic price. When Canadian mills quit dumping surplus tonnage in foreign markets for less than they charge American publishers it will be soon enough to talk about increased prices at home.'

"Paul Block, president of Paul Block Newspapers: 'It is difficult to believe it possible that the news print industry would even think of demanding an increase of $7.50 a ton. I can understand that that industry has had its share of increased expenses, just as all other business has had, but to burden the newspapers of the country with so large an increase at one time would be disastrous. I believe the paper manufacturers will realize the expediency of adopting a small series of increases annually instead of their announced plan.'

"E. K. Gaylord, publisher of the Oklahoma City Daily Oklahoman and Times: 'Announcement of $50 base price of news print for first six months of 1938 indicates an expectation of more than $50 for the last six months of the same year. No doubt news print manufacturers are faced with higher costs but not in proportion to the increased demands. Publishers whether they use 1,000 tons or 20,000 tons cannot absorb this increase unless they can pass it on to the public in increased advertising and subscription rates. The only hope of protection from still further increases is the construction of news print mills in the South.'

"George B. Longan, publisher, Kansas City Star: 'The price of paper in 1938, it occurs to me, will depend entirely on the demand for news print, not in March, 1937, but in 1938. We are entirely too far away from 1938 to know what business conditions are going to be and what the resulting demand for paper is going to be. There are so many elements to enter into the question such as the extreme possibility of a buyers' strike against high prices on the one hand and inflation on the other that no one could very well predict what the conditions are going to be that will ultimately make the price. Unquestionably, if any such price prevails as the one suggested, newspapers everywhere will be compelled to find much new revenue to meet this as well as steadily mounting labor costs and taxes.'

"John Cowles, associate publisher, Des Moines Register and Tribune:

'Although I believe paper manufacturers are entitled to an increase next year, I think the suggested raise of $7.50 a ton is excessive. I believe such a heavy increase will retard consumption. From the long range viewpoint I believe mills themselves would be better off if they made a two or three dollar raise with subsequent small raises at six-month intervals thereafter providing conditions then justified such subsequent raises. If the proposed increase is not reduced in amount or spread over a long period publishers unquestionably will be forced to reduce news content and raise circulation and advertising rates to apoint where consumption may be rather materially reduced to the paper manufacturers' own financial disadvantage.'

"G. B. Dealey, publisher of the Dallas News: 'Announcement of $50 per ton for news print price in New York next year means an additional burden of $40,000,000 per year in one item of expense on an industry that cannot carry the load. With payroll increases of millions of dollars, newspaper publishers are faced with a most serious problem of business operation.

" 'We have tried sincerely to follow the precept of "live and let live." Our advertisers have suffered, as we have suffered, during the years of depression. They are recovering and we are recovering, but our recovery is not a pace to warrant any such increase in price as the news print manufacturers are apparently trying to invoke.

" 'If the news print industry is determined to carry out its proposed plan of action, it is forgetting the resolutions of many big business men that were made during the depression, i. e., "Never again to institute principles in business that will tend to bring on another depression.'

" 'If we are forced to pay the exorbitant additional price suggested, then the law of self-preservation will force us to charge prices too severe for the other man's business. So where will the "cycle" end?'

"Frank Tripp, general manager, Gannett Newspapers: 'I can only say that I admire the colossal optimism of the International Paper Co., and I wish I could share it with them.' "

Two Months News Print Production Up 18.5%

Production in Canada during February, 1937, amounted to 275,532 tons and shipments to 251,256 tons, according to the News Print Service Bureau. Production in the United States was 72,072 tons and shipments 74,824 tons, making a total United States and Canadian news print production of 347,604 tons and shipments of 326,080 tons. During February, 28,110 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 375,714 tons. Total production in February, 1936, was 317,612 tons.

The Canadian mills produced 113,378 tons more in the first two months of 1937 than in the first two months of 1936, which was an increase of twenty-five and two-tenths per cent. The output in the United States was practically the same as for the first two months of 1936, in Newfoundland 7,376 tons or fourteen and six-tenths per cent more, making a net increase of 120,603 tons, or eighteen and five-tenths per cent.

Stock of news print paper at Canadian mills were reported at 73,769 tons at the end of February and 15,995 tons at United States mills, making a combined total of 89,764 tons compared with 68,240 tons on January 31, 1937. Considerable tonnage was accumulated at points from which water shipments will be made upon the opening of navigation.

Chlorine Price Increased

On account of increased costs of manufacturing, the price of liquid chlorine was raised the middle of March to $43 per ton, f. o. b. Tacoma, Washington.

New Finnish Kraft Pulp Mills

The most important new construction planned in the paper and pulp industry in Finland is the increased facilities soon to be available for the production of sulphate pulp. When the new mills in Oulu (Uleaborg) and Sunila (near Kotka) go into production, Finland's sulphate production will be twice as large as in 1935. In the sulphite industry, improvements have been largely confined to modernization of plants, owing to the agreement restricting production until the end of 1938, although a new sulphite mill will be erected at Aanekoski and is due to be completed in 1938.

A new sulphate mill at Heinola is also contemplated, although the final decision on this matter will only be taken in a month or so. A news print mill is planned at Inkeroinen. Building will be started this April and the mill will be completed in the beginning of 1938. Its daily capacity will be 130 tons, reports American Consul Gray at Helsingfors.

Expect Termination Abitibi Receivership

Renewed hope of early termination of receivership of Abitibi Power & Paper Company, one of the big eastern Canadian producers of newsprint, has been aroused by introduction of a bill in the Ontario legislature to validate rearrangement of power and timber limit agreements with the Ontario government.

As to actual reorganization, there have been negotiations between interested parties, but plans remain tentative. Formation of a definite plan may take considerable time because of the diversity of interests involved.

I. W. Killam Increases Holdings

I. W. Killam, cousin of Lawrence Killan, president of Britsh Columbia Pulp & Paper Company, increased his pulp and paper holdings in Canada by acquisition of a large block of Price Brothers' stock.

Royal Bank of Canada sold at $41.25 a share 137,000 shares of Price Brothers' common stocks part of the assets of the defunct Quebec Investment Company, to a syndicate consisting of Mr. Killam, the Royal Securities Corporation, Lord Rothermere, Lovett Brothers and Kitcat and Aitken.

The transaction gives majority control to interests that have been playing an important part in Price Brothers' reorganization.

Rothermere Warns of Pulp Shortage

Minimizing the possibility of Philippine bamboo or yellow pine of the southern states replacing the spruce, fir and hemlock resources of Canada as a source of growing woodpulp requirements, Lord Rothermere, noted British publisher who recently visited British Columbia, warns of a likely world shortage of pulp and declares that Canada has "a golden opportunity."

Lord Rothermere says that "the universal essence" of modern industry is cellulose, and that wood-pulp is finding a growing market for a continually increasing number of products. Ropes, wickerwork, carpets, upholstery, plastic materials and lacquer are among the more obvious manufactures, and he discusses some of the experiments recently made in Germany to extend the uses of cellulose and pulp products. He says that an artificial textile is now very largely used for the manufacture of shirts and clothes in Germany, and that German scientists are also making sugar, alcohol, vinegar, glycerine, resin, tannin and cattlefeed from precisely the same kind of wood as that which provides newsprint.

"Not only can wood-fibre replace the produce of plants like cotton, flax and hemp; the fleeces of sheep and the furs of wild animals; the products of silkworms and the feathers of birds," says Lord Rothermere, "it can further be used as a basis of a nation's needs in a wide range of other articles, from foodstuffs to explosives, from furniture to lubricants. All this is in addition to newsprint, which in Canada — where more than one-third of the world's supply originates — has reached the highest level of output in history."

Lord Rothermere sees continuing demand for newsprint and constantly widening markets for pulp to be used in other manufactures. The optimistic view is sometimes expressed, he says, that substitutes will be found for woods such as grow in Canada and the Pacific Northwest states, but he doubts whether bamboo, for instance, or southern pine will be an important factor.

"Nothing in actual commercial practice can compete with the softwood forests of Canada, which alone have the long fibre, the high percentage of cellulose, the uniform standard quality, and above all the easy accessibility and facility of cheap transport that are essential to the economic conduct of the woodpulp industry," says the British publisher.

These resources, he adds, have their limitations and in spite of one pessimistic estimate that the pulp industry of the world may face a serious threat of exhaustion within a few years the price of newsprint is substantially the same as it was thirty years ago.

He hopes that the lessons learned in the long period of depression will guide the pulp and paper makers of Canada in taking advantage of the unprecedentedly favorable conditions now opening.

New Fuel Handling System at Port Alice

by C. C. RYAN*

The hog fuel and preheated air systems were installed at the Port Alice bleached sulphite pulp mill of the British Columbia Pulp and Paper Company, for the direct purpose of increasing the steaming capacity of the boiler units to meet the increased demand.

The hog fuel system consists of a 300-foot dock from which the barges discharge onto a 30-inch fuel belt which carries the fuel beneath the yard fuel pile onto the boiler room conveyor. From the boiler room conveyor surplus fuel not used in the furnaces is returned to a high elevation stacking conveyor which discharges this fuel into the yard storage. The fuel barges are equipped with self-contained fuel belts and electrical apparatus and upon mooring to our dock are given electrical energy from our power lines. The fuel discharges through the stern of the ship directly onto a conveyor carried on a pivotted off-loading boom. This boom is counter-weighted and its elevation can easily be adjusted to meet the discharge from the ship.

The conveyor direct from the jetty to the boiler house is approximately 600 feet long and return to yard storage about 400 feet. The supporting structure is of timber, tower and truss construction, about 60 feet in height and is equipped throughout with roller bearing conveyor rolls and 30-inch rubber conveyor belt.

On either side of the supporting structure railway tracks are provided at a suitable distance to accommodate a yard crane. This crane may be used to spread the storage pile and thus enhance our storing capacity, or to place on the tunnel belt that fuel which does not flow by gravity. It is estimated that the total storage for hog fuel will approximate some 4,000 units. A 24-inch conveyor belt in a similar housing and carried on similar equipment carries hog fuel from our own mill refuse and delivers that onto our yard storage belt from where it is delivered into yard piles and is thereby mixed with the imported fuel.

To facilitate the combustion of hog fuel and to correct for its natural moisture content, a preheated air system was installed. This system consists of a preheater placed in the boiler breeching line and the products of combustion after being drawn through the preheater by an induced draft fan, leaves its cinders and carbon in two precipitators before going to the stack. The bottom of both precipitators is connected to a small induced draft fan which continually removes the particles of carbon deposited there and through a cyclone on the roof of the power house, deposits them in one of the furnaces.

At the top of the boiler just under the ceiling and over the smoke pipe breeching, where the air naturally is the hottest, a fan, driven by a steam turbine, draws air and forces it through the air preheater. This air is conducted at a temperature of approximately 400 degrees F. through large ducts into each ashpit. The ducts are connected as well to ports in the centre of the hollow bridge walls. The preheated air entering the ash pit is admitted to the furnaces through air ports in the side wall, through dampers in the dead plate, as well as through the grate bars at the edge of the fuel pile.

Combustion is found to occur on the back of the fuel pile as well as the front. This is on account of the air admitted through the bridge wall both against the pile of fuel as well as secondary air into the combustion volume itself. By controlling the damper admitting air to the bridge wall it is hoped that the required flue gas analysis may be sustained.

*Resident Engineer, British Columbia Pulp & Paper Company, Port Alice, B. C.

Greater Hemlock Usage To Cause Forest Conservation

One of the surest means of effecting forest conservation in British Columbia lies in increasing the markets for hemlock, according to E. C. Manning, chief forester of the province.

"I believe that the pulp and paper mills of British Columbia and the Pacific Northwest states will play an important role in the years to come in stabilizing the market for forest products and in insuring longer life for the species of timber that in the past have been cut to an extent entirely out of proportion to their percentage in the forest," says Mr. Manning.

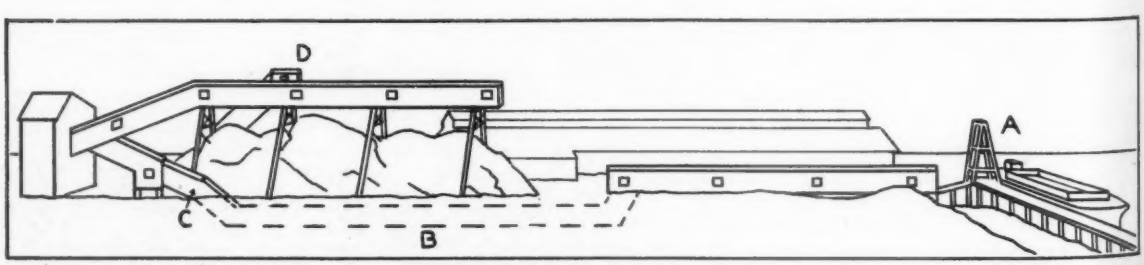
"We must search out increased uses for hemlock in the field of rayon silk, newsprint and fabricated woods," says Mr. Manning. "The market demand for fir is away out of line when considered in the light of that species' prevalence in the forest. Between the years 1926 and 1936 British Columbia's cut of hemlock in the lower coast area alone increased 9 per cent; cedar, 13 per cent, and fir, 19 per cent. Anyone can see where we are heading if that trend continues."

Mr. Manning is seriously concerned over the future of British Columbia's forests unless business-like efforts are made to protect the young growth, re-forest cut over stands, prevent fires and otherwise conserve the source of wood supply.

Mr. Manning recalls that while as long ago as 1910 a government commission investigated British Columbia's forest problem and recommended that the timber should be regarded as capital rather than current expenditure, most of the revenue derived from the forests had been expended on departments having nothing to do with forest management or conservation. Of $67,500,000 collected in timber royalties during the twenty-five years since the commission made its report, $50,000,000 had been diverted to general revenue channels.

Mr. Manning does not hold the governments or the loggers to blame for the basic condition of the forests. He does blame general public apathy and indifference, despite the fact that the forest indusries contribute far more to British Columbia's treasury than any others.

"How long will he virgin timber supplies on the lower coast of British Columbia last? I know of no easier way of getting nominated for membership in the statistical liars' club than by attempting an answer to that question," says Mr. Manning. "But we estimate that there are 125 billion feet of merchantable timber in the Vancouver district of which we think about 56 billion feet is accessible under present logging methods and marketing conditions. Last year we cut 2½ billion feet, of which 1½ billion feet was fir. These figures are susceptible to varying methods of deduction, but the basic fact is there."



At point A is the counterweighted, pivotted off-loading boom which connects the plant conveyor with the barge conveyor » » » Tunnel conveyor carrying hogged fuel from barge under storage pile is shown at B » » » At C conveyor emerges from tunnel and goes to boilers, excess fuel returns on high conveyor to yard storage » » » At D refuse conveyor from Port Alice wood breakdown plant joins storage conveyor.

Port Alice Fuel Handling System

In No. 1 is shown the counterweighted, pivotted off-loading boom used for unloading barges containing hogged fuel » » » This boom also shows in Nos. 3 and 4.

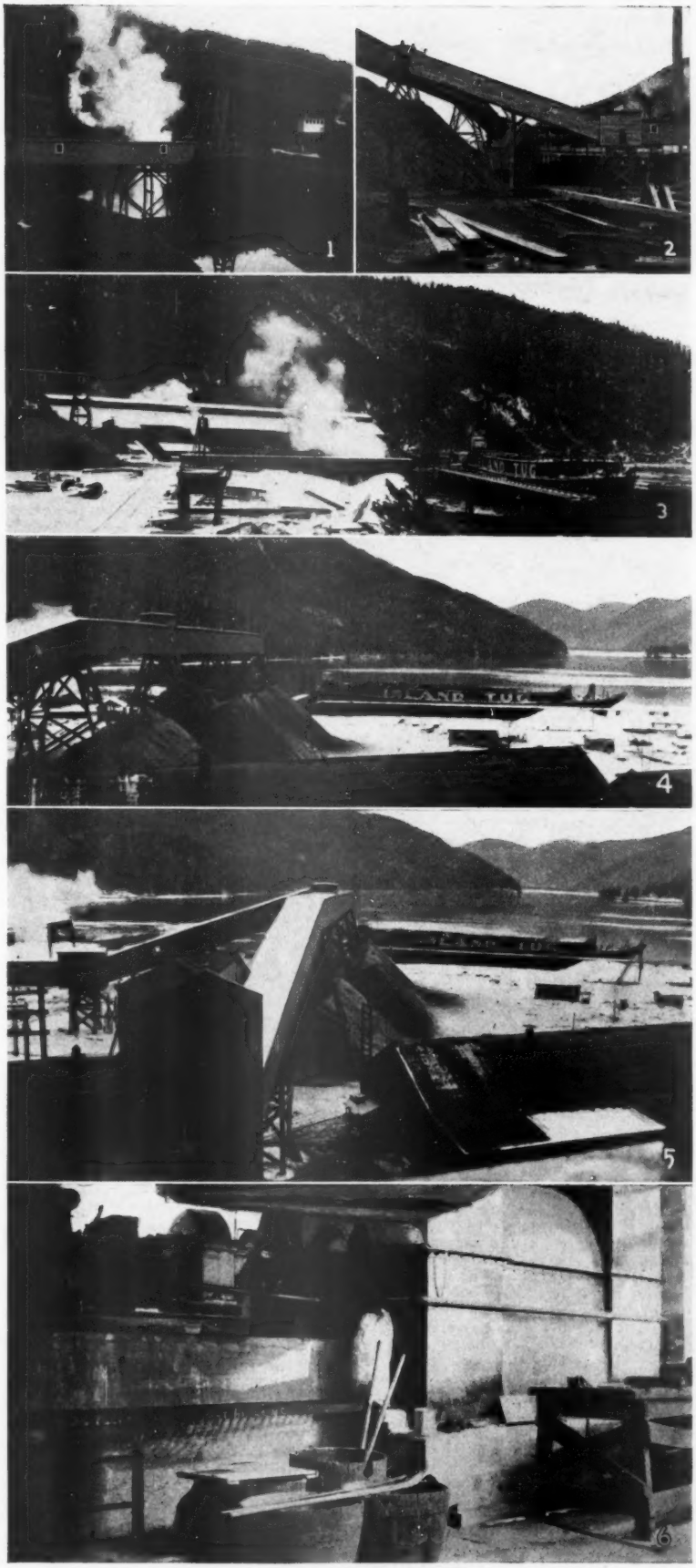
In No. 2 is a close-up of the refuse conveyor from the Port Alice wood preparation plant » » » Refuse is conveyed to storage pile joining the main storage conveyor » » » This same conveyor appears in picture No. 5.

No. 3 shows the off loading boom conveyor and enclosed conveyor which conveys fuel from barges on tunnel conveyor under storage pile » » » Tunnel conveyor is also used to take fuel from storage.

No. 4 shows in the distance the counter-weighted, pivotted off-loading boom carying fuel belt from the stern of hogged fuel barge » » » This conveyor runs through underground tunnel beneath fuel pile to boiler house » » » Excess fuel is carried on elevated return conveyor to storage pile.

No. 5 shows the elevated return conveyor delivering to storage with refuse conveyor from Port Alice wood room joining at the left.

In No. 6 is shown the heat exchanger for preheating air to facilitate the combustion of the wet hogged fuel.



Bulkley, Dunton Acquire Pulp Technician

On April 1st Rex Vincent of Chicago became associated with the Bulkley, Dunton Pulp Co., Inc., as a pulp technician.

Mr. Vincent is a member of TAPPI, and is well known in the Middle West, having been associated with several paper mills as chief chemist. Up to recently he has been employed by the Container Corporation of America as assistant superintendent of their Coated Board Division, Chicago.

In his new work Mr. Vincent will serve Bulkley Dunton and their customers in a cooperative effort to improve the use application of the various grades of pulp distributed by the pulp companies. He will also assist in the proper selection of grades to be supplied for a particular use requirement commensurate with conditions and equipment.

As a pulp technician, Mr. Vincent will also function for the benefit of pulp mill connections by special studies and research to improve their understanding of local conditions affecting customers' requirements and to advise pulp mills on quality changes necessary to keep abreast of paper mill progress.

Mr. Vincent will headquarter at the Chicago office of the Bulkley, Dunton Pulp Co., Inc., 80 East Jackson Boulevard, under the direction of Roger Egan.

Wood as a Raw Material

For Chemical Commodities, Including Chemical Pulp, Plastics, Wall Board, Explosives

By L. F. LIVINGSTON*

The chemical conversion of forest products is something that neither Paul Bunyon nor his blue ox, "Babe," ever dreamed of. Nevertheless, in the very few years since it has become a part of lumbering, it has grown fabulously, both in practical value to the industry and in economic importance to the nation.

Recent economic disorders have impressed upon the public consciousness certain laws, both natural and economic, which have always been in operation, but which, when they began to be important were obscured by the golden glow of the pre-1929 boom. A chastened populace, taking inventory after the calamity, realizes that paper profits are but the shadows of riches. That real wealth does not consist of money, but of goods, of which the primary source is the earth, the sea, the air. We see now that the supply of raw material wealth is not inexhaustible as we had supposed. Some alarmists even predict a future, not very distant, when our forests will be denuded, our mines exhausted, the fertility of our soil dissipated on the ocean floor instead of enriching the soil of our farms.

I refuse to subscribe to such a prediction. Our raw material wealth can be and is being conserved. The elements which make it are still abundant. I believe it can be expanded to make our nation supreme as never before. It is true that preceding generations have been unwise in their dispersal of our seemingly inexhaustible raw material wealth. We must not be too critical of them. Their extravagance has made this country unrivalled in importance among nations. They did not dream of a future growth of 'population which would make it necessary to conserve for future generations. Much of their ill-advised waste was justifiable by every economic law of the time. Inadequate transportation and market facilities made it unprofitable to market anything but the cream of any crop. What was left was abandoned to be destroyed by fire or other agencies.

We must not be too critical of them, but the fact remains that conservation of the forests and even of the soil itself, both of vital importance, and both unreplacable or nearly so in a life span, has been in a large measure ignored until recent years. Removal of the protective forest covering, according to lumbering practices common with our grandfathers and even some of our fathers, has cleared the way for disastrous fires and floods with their accompanying evils. The clearing of submarginal lands, one-crop farming, improper drainage, unsuitable cultural methods, inadequate or incorrect fertilization have impoverished millions of acres of soil.

Times have changed, and with them economic laws. Sweet potatoes are still a favorite food, but it now seems possible that they may replace much of the cassava not now imported. Cotton no longer finds its only utility in the garment trades. It goes to markets in 10,000 forms, many of them absolutely different from the original one. Industrial uses have been found for tobacco in the making of insecticides and fungicides. Lumbermen have been faced with increasing competitions in the building industry, making imperative many changes in their marketing tactics, and forcing the expansion of other uses of wood.

Transportation and technological developments have made inexcusable the old marketing methods which used to leave 28 per cent of the sound timber in the woods as waste and another 29 per cent as waste in the sawmills. We have it on the best authority that in the past, more wood has been wasted or destroyed annually than our forests are capable of growing annually. We know that this is not true today.

These changes, along with the introduction of new raw materials have founded dozens of industries. They have, for the most part emerged from the testtubes of the chemist, fostered by agriculture and engineering. And most important of all, to the lumber industry a great number of them have their basis in the chemistry of cellulose, a raw material which occurs everywhere in the vegetable kingdom and especially in wood pulp and in cotton.

The physical structure and chemical composition of wood is still controversial. Scientists have been trying for years to unravel the knotty problems involved, and their success has been such as to make certain a new and strange career for the products of our forests. They have discovered ways of meeting the competition which has been curtailing its uses, and new ways of converting it chemically, until the idea does not seem too fantastic that some day wood will duplicate the stockyard utilization of the pig in which everything is used but the squeal.

You are all aware that of the chemical constituents of wood, about one-half is cellulose. A chemical analysis shows that about one-quarter is occupied by lignin, and the remainder the hemicelluloses, wood extracts, and ash. For our purposes, perhaps a better classification would be according to the forms in which we most frequently see it, other than in lumber such as sawdust, woodpulp, woodflour, turpentine rosin, charcoal, etc.

Sawdust is used with very little conversation as a fuel, as in briquettes, as a building material, as in wall and insulating boards, as a packing material, and for miscellaneous other uses. It also forms the raw material for many industrial uses.

The largest use the chemist makes of wood is in the manufacture of paper. It is the basic raw material of a large section of the pulp industry and its cost is one-third or more of the total cost of pulp production. Its importance to the pulp industry, therefore, justifies the amount of attention that is being given wood by scientists interested in economical production and control of the pulp quality.

There are measurable differences in the yield and quality of pulps of different species. However, recently published results of experiments by the U. S. Forest Products Laboratory at Madison Wisconsin show that "variations within the species have more influence on pulp properties than variations in related species grown under identical conditions. The chemical constituents of the woods and the physical character of the fibers are affected by variations of growth conditions, sometimes yielding differences as high as 12%. Wood density, growth rate, springwood — summer-wood ratio, and compressionwood content greatly affect fiber characteristics, and, therefore, pulp quality."

A short time ago, leading pulp woods were spruce and poplar. However, cellulose is cellulose, whether it forms in spruce or hemlock, and while each species has its own peculiar problem, that of converting spruce and poplar has been the easiest.

Scientists have made considerable progress in overcoming difficulties in the use of woods hitherto considered inferior. You will hear a discussion of the chemical conversion of hemlock. The U. S. Forest Products Laboratory has produced satisfactory pulps from Douglas Fir by the substitution of soda or ammonia for the lime base used in the standard sulphite pulping process. Another modification of the process, using a preliminary impregnation of the chips with sodium sulphite followed by digestion with standard lime base sulphite pulping liquor has also given satisfactory pulps. Recently bleachable pulps of exceptional strength have been produced from Douglas Fir with neutral or alkaline sulphite liquors, the principal cooking agent of which is Sodium Sulphite. The use of high liquor-wood ratios in the sulphate process has resulted in light-colored, easily bleachable pulps having a high alpha-cellulose content. This is of interest not only to paper pulp manufacturers but also to the rayon industry.

*Manager, Agricultural Extension Section, Explosives Department, E. I. DuPont de Nemours & Company, Wilmington, Delaware. Presented before the Pacific Northwest Chemurgic Conference, Spokane, Washington, March 22-23, 1937.

Another example of the new economic importance of a once-despised wood species is the development of a great pulp industry in the South using southern slash pine as a raw material. The well-known experiments under the direction of Dr. Herty have made it possible to produce pulp paper on a commercial scale after having surmounted endless difficulties.

These new developments have a peculiar significance in view of the recent agitation for soil conservation. Such timber growth provides valuable cover for soil and game and at the same time will furnish industrial raw materials without depleting the country's raw material resources.

Wood In Explosives

You are all familiar with the immense amount of constructive work that explosives have been doing for generations in the mines, on railway and highway construction projects, on the farm, and in logging operations. But I wonder if you realize how essential that work has been. I am reminded of what a scholarly old gentleman once said to me in this connection. He said that the term "The Age of Steel" was a misnomer. It should have been "The Age of Explosives." That explosives were a more fundamental requirement to national development than steel. But for dynamite, there would have been no steel, no railroads, no great factories. Perhaps he exaggerated, but the fact remains that explosives have accelerated the rate of national development probably more than any other one material.

Into the making of dynamite goes a vast amount of raw material taken from our own renewable resources. In the ingredients of every 100 pound unit of explosives goes at least 2.4% of sawdust and pulp. These are wrapped in a special paper made of wood-pulp, which in turn accounts for 4.81% of the volume of the 100 pounds. The sticks are packed in a box comprising about 17% of the total weight, with sawdust amounting to 1.09% as a cushioning material between the sticks. All in all, we use about 25 pounds of wood or wood products for every 100 pounds of dynamite manufactured.

In 1936, the DuPont Company alone used 30,000,000 pounds of wood of various kinds in the production of explosives, and it is estimated that the industry as a whole spent last year nearly $1,500,000 for wood products.

Referring back to the paper cartridge wrapping, it is an interesting fact that the paper in which explosives are cartridged is more than just a package. It is an ingredient of the explosive composition which takes part in the explosion and aids in producing the hot gasses which cause the explosive force. The pulp not only serves to absorb nitro-glycerine, but permits regulation of density or sticks per case as well as properties of the explosive.

Wood in Plastics

Although there is ample evidence that softwoods are equally suitable for conversion into plastics, most of the work up to the present time has been confined to hardwoods because the demand has been for that type of plastic. The plastics field has been considerably widened by the investigations into the use of hardwood wastes in the making of plastic products. There are a number of ways by which hardwood sawdust or other hardwood mill waste can be converted into moldable powder, but experiments conducted at the Forest Products Laboratory, seem to indicate that two processes stand out as best suited to commercial use, at least for the present. In the hydrolysis process, hardwood sawdust is hydrolyzed in the presence of 1% by weight of sulphuric acid and 2½ times its weight of water. The residue left after the sugar solution formed by the hydrolysis is drained and washed off amounts to 60 or 65% by weight of the original wood. Grinding of this material produces for about 1 cent a pound, a powder which can be pressed in a hot mold. The properties of the molded articles can be modified to a very large extent by the use of different plasticizer. Plasticizers such as aniline, furfural, triphenyl phosphate, dibutyl phthalate, and the toluene sulphonamides produce valuable materials which will differ somewhat from each other in their various properties. Selection of the proper plasticizer will be governed quite largely by the type of material which is desired.

By the aniline process, hardwood sawdust or other hardwood waste is digested with 2½ times its weight of water and 20% of its weight of aniline and produces a yield of 90 to 95% by weight of the original wood. This, when thoroughly washed free from soluble matter is ready for molding by the use of water only. The product, which contains about 12% aniline, is very nearly equivalent to that obtained by the use of furfural and aniline as plasticizers in the hydrolysis process. It should be produced for approximately 3 to 4 cents per pound. The addition of 8% furfural to this anilinated sawdust produces a material with a very brilliant finish, good strength and water resistance, with an appearance quite similar to jet black phenol formaldehyde resins. So far only black materials can be produced from the sawdust itself. If other colors are desired, the resin must be colored with pigments as an exterior finish, or other devices used which will effectively hide the black color.

These experiments and many others are being carried on at the Forest Products Laboratory and other places throughout the country. They cover just about the whole range of wood plastic possibilities. Their results are readily seen in this group of samples. The Forest Products Laboratory used samples similar to these at the Patent Office Centennial in the spectacular Research Parade. You will find in them a graphic illustration of what the Forest Product Laboratory and others are doing in this line.

I also have here something that is considered to be at the present time, the last word in plastic manufacture. It is called Lucite, and has the clearness of optical glass as you will see if you place it over printing. Other properties make it a very valuable development. **It is made from coal, water and air, but in the future woodpulp plastics will perhaps even surpass this present ace of plastics.**

Wood Flour

Another by-product of value to the lumber industry is woodflour. This material is different from the woodpulp we have been considering in that it is not treated with chemicals in any way prior to or after grinding. The coarser grades are used principally in the manufacture of explosives and roofing paper, and the finer grades are used as fillers for plastics and linoleum. It can be used anywhere that a filler is required.

At the present time, the use of American woodflour is somewhat curtailed in this country by the competition is encounters from importations and from other fillers such as ground rice hulls, ground oat hulls, ground apricot pits, ground English walnut shells, etc. Its value lies in the fact that much of it is made from woods which normally would not be considered suitable for the manufacture for ground woods for paper pulps.

Extensive experimental work may easily find a wider usefulness for this product, which will put it on a basis more profitable for the producer. The normal annual consumption of woodflour in the United States is 60,000,000 lbs. of which approximately 25% is now imported.

Study of Lignin

Because of its extreme stability toward hydrolytic reagents, the chemistry of lignin has been of major importance to those working on the pulping of woods ever since that industry began. Next to cellulose, it is most abundant and widely distributed substance in nature, and it must be taken out of the cellulose before white paper, rayon, or many other cellulose products can be produced. However, it can be treated to produce oxalic acid, carbon dioxide and dyes and it polymerizes easily and combines with other compounds to form resinous or plastic material. "The plastic properties of lignin and its associated materials displayed under certain chemical reactions make raw materials containing lignin of particular interest in the field of plastics, and in these days of cost reducing devices and processes, any material which promises to produce finished articles by casting, stamping, pressing or molding is of great interest."

"The supply of sawdust suitable for such plastics runs into millions of tons. Simple hydrolysis of sawdust with dilute acid at the proper temperature and pressure is sufficient to produce a powder which will mold to a hard black dense material not far different in appearance and properties from other well-known molding materials at only a fraction of their cost." Modification of this simple treatment produces other plastic materials having slightly differing properties.

Conservation

From boyhood, I have had an intense interest in conservation. In those days, it was a romantic interest, engendered by the magnificence of the natural surroundings in which I was privileged to grow up. That interest has followed me, unabated, all through my life, only now, the romantic appeal, while still there, is somewhat overshadowed by a practical economic one. By "Conservation," I now mean conserving our raw materials, growing cover for wild life, providing recreation areas for the increasing demands of leisure, restricting soil erosion, checking floods. In the long run, conservation on such a scale can be made to pay dividends.

Pollution

One of the major problems which paper manufacturers must sooner or later face is the pollution of streams by chemical wastes to such an extent that fish propogation is impossible and the whole area loses a portion of its recreational value. The Forest Products Laboratory has succeeded in developing a method of recovering chemicals from waste soda base sulphite which offers possibilities of pulping resinous as well as other species and promises an elimination of stream

pollution. These particular results were obtained on a laboratory basis and require commercial demonstration. However, they do point a direction toward which some of the research effort is going, and they indicate that all the problems in connection with the disposal of waste sulphite liquor are not without their solutions. It is estimated that in the United States and Canada at least 2,000,000 lbs. of solid matter find their way into the sulphite liquor and large percentages of this are wasted. It is obvious that any attempt to recover those constituents which have commercial value is definitely worth while.

Wood Distillation

It would not be well for me to omit a brief mention of some of the other problems in connection with the preparation of wood for industrial use. Modern methods of recovering acetic acid have increased the possibilities of the destructive distillation of wood wherever condition are favorable. Until comparatively recently the only method of making acetic acid from the pyroligneous acid obtained by distilling wood, was to neutralize the acid with lime, evaporate off the water and then treat the acetate of lime with sulphuric acid to produce the strong acetic. The lime and sulphuric acid were expensive and were eventually thrown away, their only use being to separate the acetic from the excessive amount of water with which it was associated in pyroligneous acid. To avoid this expense, various ways of separating the acid from the water without the use of either lime or sulphuric have been developed. There are three in successful commercial operation in this country at present. They are the Suida process, the azeopropic process and the solvent extract method.

Associated with the problem of destructive distillation of woods is the conversion of the charcoal by-product into activated carbon, a valuable product, for which new uses are daily being found.

The key to the commercial usefulness of activated carbon is its high absorptive ability. It is widely used in recovering solvents, in clarifying and deodorizing dry-cleaning fluids, decolorizing and deodorizing edible oils and acids, in sugar refining and in purifying drinking water. These uses are being constantly increased.

The idea of the chemical conversion of forest and farm products is not a political policy. It is not the strife of one class against another. It is not a crackbrained idea of Utopia. Like Topsy it "just growed." There were no brass bands to celebrate the first chemist who succeeded in making paper out of vegetable fibre, or the first to spin a rayon fibre from a substance obtained from the soil. They were sober workmen, going about their business, and it is extremely unlikely that either of them would have believed if they had been told what their discovery would eventually mean to humanity.

But, on the work of these and others has been built a new science, the science of cellulose chemistry, and new industries which promise to transform human life. What they have already accomplished is impressive, yet it seems to be but a foretaste of what a chemically engineered future holds in store for the Northwest and for the world.

These industries are still in their infancy. Chemists in their laboratories and other scientists working out practical applications of chemical discoveries still have technological difficulties to overcome in making the fullest use of American-produced raw materials. But, almost daily, some baffling problem is solved and some old obstruction to progress removed.

Chemists are continually finding new uses for the perpetually renewable raw materials, adding to the national wealth without depleting our resources. They are reducing timber wastes and finding uses for woods previously thought to be of little value. Chemical and technological research are constantly overcoming the difficulties presented by their individual characteristics. Already the growers of these raw materials find a market in industry for a considerable amount of their surplusses.

Already the pattern of American life is following new lines, adapting itself to changing conditions and values. Institutions rise and fall and on the wreckage new institutions rise. But it inevitably follows as day the night that the new is finer, stronger, healthier than the old.

Tacoma's Future Lies in Pulp Industry

In a local newspaper interview late in March, Ossian Anderson, executive vice-president of the St. Regis Kraft Company and president of the Puget Sound Puly & Timber Company, stated:

"In a modern world of diminishing per capita demand for lumber, here is an industry displacing the lumber industry. Pulp typifies the industries Tacoma must seek. It is an industry made to order for the proper utilization of natural resources. It uses the lower species of wood, for example, hemlock and waste, formerly a drug on the market, and in the future can use second and third crops, not necessarily over 40 years old. Thus the permanence of the industry is assured, and in turn it assures the permanence of other industries. Tacoma should leave nothing undone to get more pulp mills."

Mr. Anderson went on to say that Tacoma's future as the forest products capital of the world lies increasingly in the wood pulp industry. More pulp mills will be built on the West Coast and it is up to Tacoma whether they will be located there or elsewhere, for Tacoma has every natural resource to offer the pulp industry and the pulp industry has much to offer Tacoma.

The expenditures of the St. Regis Kraft Company in Tacoma were cited by Mr. Anderson to show what a larger pulp industry would mean to the city.

St. Regis has spent more than a million dollars in modernizing the Tacoma plant, Mr. Anderson was quoted as saying. Seven hundred men were employed in construction for the first six months and for the last four months 275 have been employed.

The regular payroll will be about $550,000 a year, raw material purchases $650,000 annually and its operation will create indirectly employment for about 600 men engaged in chemical production, log towing and other services. Machinery and supply businesses will benefit by about $125,000 annually.

The stability of the pulp industry was pointed out by Mr. Anderson, who said the St. Regis mill will operate about 350 days a year employing 300 men, shutting down only for holidays and for emergency repairs. On the other hand the lumber industry fluctuates in its operations producing erratic employment.

Further, the pulp industry's average pay per man hour is 10 per cent higher than the lumber industry. On the Pacific Coast the pay rate of the pulp and paper industry is 20 per cent higher than the industry pays in any other section of the world.

St. Regis will pay annually to the City of Tacoma approximately $175,000 for water, power and taxes. Of this $60,000 represents water payments, which prior to St. Regis reopening of its Tacoma mill flowed into the bay.

Mr. Anderson pointed out that if Tacoma wanted more pulp mills it had, first of all, to provide more water at cheaper rates.

S. P. S. Increase Sulphite Production

At an ordinary meeting of the Council of the European Sulphite Organization, it was decided to increase the output of sulphite wood pulp. It was also announced that although prices had improved, most of the 1937 production had been sold at the earlier more unfavorable prices.

When the S. P. S. was formed in 1930, the demand for pulp had diminshed considerably, and the primary object of the organization was to try to adapt the production accordingly. The market situation is now entirely reversed in that there is a shortage of pulp; the S. P. S. is thus merely carrying out the same policy of adapting production to consumption when it increases the production of its members. No information whatever is given regarding the quantities involved, presumably for the reason that the import of any specific figures given might easily be misinterpreted. The resolution to increase the output should probably also be interpreted to mean that each country or private producer should utilize available output capacity as rationally as possible. This is, of course, also in the interests of the producers themselves, if they are to derive the greatest possible benefit from the now improving prices.

The announcement sent out by the S. P. S. meeting also indicates that sulphite cellulose has not yet, like most staple goods, reached the 1929 price level. The various classes of goods have progressed very unevenly, but in comparison with certain other products, pulp has obviously not yet attained to the 1929 level. It will be noted, for instance, that wood goods are now considerably above their 1929 level. Staple goods used for armaments, more especially iron and other metals, have also exceeded the 1929 level. In this connection, however, it must be remembered that comparisons with 1929 are to some extent halting, owing to currency changes. Reckoned at their gold values, the prices of practically all goods are still considerably below those of 1929. (Trade Commissioner Charles E. Brookhart, Stockholm.)

Rainier Declares Extra

Directors of the Rainer Pulp & Paper Company on March 28th, declared an extra dividend of $1 per share on both class A and class B stocks, payable April 20th to stock of record April 10th. The shares are on a regular $2 annual dividend basis, the regular quarterly dividend of 50 cents having been paid March 1st.

Braun Elected Vice-President

At a recent meeting of the board of directors of the Hawley Pulp & Paper Co., John H. Smith, formerly vice-president, was elected executive vice-president of the company, and Carl E. Braun, mill manager, was elected vice-president.

At the same time, Mr. Braun announced that C. E. Ackley had been appointed general superintendent of the plant, succeeding Jack Johnson, who has resigned because of ill health and who is now in California recuperating.

Mr. Ackley came to Oregon City from the Grays Harbor Pulp & Paper Co. at Hoquiam, prior to which he had been with several other Northwest mills.

Camas Improvements

The Crown Willamette Paper Co., division of Crown-Zellerbach Corp, is installing at the Camas, Washington, mill a new 25 ton digester to add to present sulphite production. It will produce 50 tons of pulp per day, bringing total sulphite capacity of the plant up to approximately 300 tons.

Reasons for installation of the new unit are two-fold. Paper production at Camas has been gradually increasing to a point where present sulphite production has been inadequate, and it has been necessary to ship in pulp from the West Linn mill. Secondly, the National Paper Products Co. at Carthage, N. Y., have been buying their sulphite pulp, and the new expansion at Camas will permit shipment from there to the New York plant.

The Carthage mill will take about 30 tons per day, and the remainder of the Camas production will be used in the paper mill here. The surplus sulphite at West Linn, formerly shipped to Camas, will be pressed and bailed for the export market, chiefly in the Orient. Two hydraulic presses have been shipped there from Camas and installed in a small concrete building constructed for the purpose.

Other Camas improvements include the installation of a new high pressure dryer on No. 10 machine. The old dryer is being shipped to Carthage, N. Y., where it will be used by the National Paper Products Co.

Bleached sulphite production will shortly be increased at the Camas mill, through the expansion of the bleach plant. It will add about 25 tons per day to bleached production, and total capacity will ultimately be around 150 tons. The bleach plant was originally built with 10 cells, only five of which have been used heretofore. Two more will now be put into service.

A chlorinating tower will be constructed, some additional stock tanks provided, and an Impco washer and thickener will be installed for acid washing. Two stage bleaching will be employed to even further improve the quality of bleached pulp, by giving a better bleach with a longer period, and better color with less chance of color reversion.

In the wood mill, work has been started on the installation of the fourth drum barker for the plant.

Plan Joint Meeting At Vancouver, June 11, 12th

The Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association and the Pacific Section of TAPPI, announce a joint meeting of the two organizations will be held at the HOTEL VANCOUVER, VANCOUVER, B. C., Friday and Saturday, JUNE 11th and 12th.

Ray C. Onkels of the Westminster Paper Company, chairman of the Pacific Coast Division of the Superintendents Association, and Andreas Christensen of the British Columbia Pulp & Paper Company, member of the executive committee of the Pacific Section of TAPPI, are the chairmen in charge of arrangements for the joint meeting.

Plans for the largest and most interesting joint meeting ever held on the Pacific Coast are already under way, and the chairmen suggest that all men planning to attend make reservations immediately with the Hotel Vancouver.

Port Mellon Short of Cargo Space

Port Mellon Operating Company, with mill on Howe Sound, is operating at about 70 per cent capacity and producing approximately 60 tons of sulphate pulp daily for kraft paper manufacture.

Chief worry of Port Mellon officials is shortage of cargo space. They have been unable to obtain anything like the amount of freight accommodation during the past few weeks and so far have been given scant hope for an improvement within the next six months.

However, the company is shipping a fair volume by rail and some of the consignments are routed clear to the Atlantic coast. New Hampshire mills took a shipment recently, and the output is being well scattered. Although F. W. Leadbetter, of Portland, is president of the Port Mellon company, the Port Mellon plant operates independently of the Leadbetter enterprises in the Northwest states and has no ironclad contract to give the Leadbetter mills first call.

The company has been selling a substantial amount of pulp to Japan, which is said to be prepared to take a much increased volume. Harry Pakenham is mill manager.

Olympic Declares Arrearage Dividend

Directors of the Olympic Forest Products Company meeting in San Francisco on March 26th declared a dividend of $4 per share against the arrears on the company's preferred stock. The dividend was payable April 15th to stockholders of record April 5th.

B. C. Mills Protest New Shipping Taxes

British Columbia pulp and paper mills will be seriously affected by the new Canadian government charges applicable to all shipping in the principal ports. Powell River and Ocean Falls are the ports that will suffer most from the pulp and paper standpoint.

Shipping and industrial interests of Vancouver and other cities are strongly protesting against the new regulations, and a delegation may be sent to Ottawa with a view to dissuading the harbors commission from enforcing the measure, which was to have become effective April 1.

On logs alone it is estimated that British Columbia pulp and paper mills will be compelled to pay an impost totalling more than $300,000 a year. It is an entirely new order, based on a charge of 33 cents a thousand on all logs towed into port. As the big newsprint mills of British Columbia have all their pulpwood delivered to them by water it means that they will have to pay a new tax on every log they buy. The impost is one more factor that will increase the cost of newsprint and pulp production.

J. H. Lawson, counsel for Powell River Company, was named a member of a representative committee to protest the new rates. Others on the committee represent lumber, coal, transportation and logging interests.

Leadbetter In B. C.

F. W. Leadbetter, president of Port Mellon Operating Company and other pulp and paper companies in the Northwest, has been spending a few days at Harrison Hot Springs, B. C.

Wood Preparation In the Pacific Northwest

by FRED NICHOLSON*

In round figures, 12,000,000 tons of wood pulp, or its products, are consumed in the United States per year. This is more than 200 lbs. per capita contrasted with 60 lbs. per capita per annum used thirty-five years ago. Of this amount, 5,000,000 tons orginiates in this country, of which 1,000,000 tons is produced from raw material harvested in our Northwest.

While the use of pulp products has doubled in the last twenty years, the production of it in this section has increased four-fold in ten years, and it is estimated by students of the subject that we can perpetually sustain a yield equivalent to one-third the total requirements of our nation.

This indicates a healthy future for the business and persons affiliated with it, providing an economic balance can be maintained. I think the young men who have identified themselves with this industry are to be congratulated.

The comparative cost of the raw material, as chips, between here and elsewhere, seems to be accelerating the growth of the industry here. Probably the lumber industry will continue to be an indifferent competitor for the type of timber being utilized for pulp. Hemlock has apparently owned a disadvantage, at least in the market, as lumber, and recent developments attending the harvest of Douglas fir have made an ever larger supply of hemlock logs available.

It is said the use of sawmill refuse for pulp is decreasing, but it might be held that conditions in the timber supply and market have made the proportionately larger utilization of whole logs by the pulp and paper industry inevitable. It is possible the expansion has been taken care of through the use of more logs and that there has been little, if any, curtailment of use of by-products from lumber mills.

The use of mill refuse will be a very important source of supply, if and when hemlock should partially overcome its present secondary position in the lumber market. The accepted sawmill of the future may be a hybrid in which lumber and pulpwood are coincidently produced.

Mother Nature does not manufacture trees to order, and perhaps each log will be treated as an individual problem, and made into the products for which it is best adapted and from which the most profit might accrue.

Whatever the future tendency may be, there is today a swing toward construction of wood rooms, in which a sawmill is used to break down logs exclusively for pulp. A log haul, log saw, band head rig and carriage, together with their auxiliary equipment, and sometimes followed by an edger; seem to be the favored equipment on which to perform the initial operations.

It is obvious that the cross-sectional area of the cants or slabs should be controlled with a view to the percentage of defect it is necessary to remove in subsequent operations. This is the secret of economical operation, for as the sections are reduced in size, the cost of handling and loss incurred in cleaning and chipping, is increased.

From the head saw, or the edger, as the case may be, the cants from the surface of the log pass directly to a barking machine or to a gang trimmer and then to a barker.

Perhaps there is no operation in the wood room on which there has been so much experimentation and for which there have been so many types of machines developed as the barking, for here may occur the largest loss, both in material and labor.

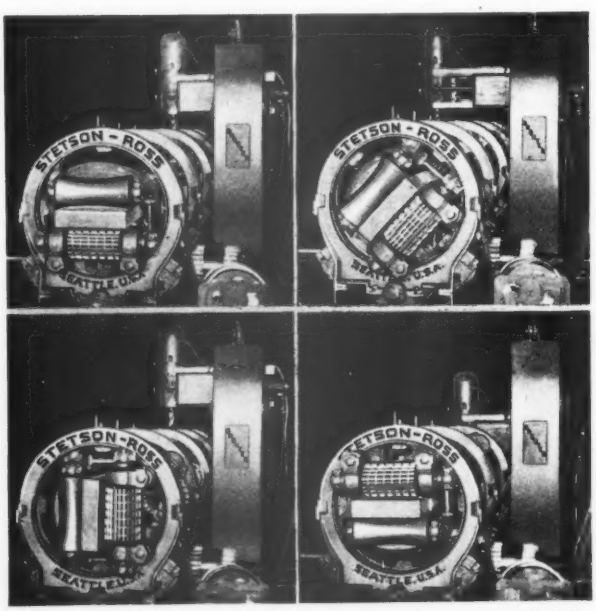
After barking the material may be transferred to equipment where hard black knots, as well as stain and rot, may be cleaned out by means of various types of drilling machines, dado saws or routers.

In these machines the material is carried on rolls and moved along, or rolled over to approximately position it beneath the tools which are then brought into play with some form of power feed under control of the operator.

In certain plants where the cleanest possible chips are desired, the wood is then inspected and run through a washer before it proceeds to the chipper.

In the evolution and development for wood rooms in the Northwest, a certain influence is present which perhaps does not appear to such an extent elsewhere. I refer to the larger logs available here. But the trees are often over-ripe, and almost always have charred black knots buried deeply below the surface near the heart. In any case, the thorough removal of defects necessitates the breaking down of the logs (sawing into cants from ten to twenty feet long, and this operation is customarily done before the bark has been removed.

We are aware that for years round log barkers have been used in Europe, and some sections of the United States where the trees are small and characteristically round and smooth. Such machines have not come into vogue in the West. However, there have been suc-



THE STETSON-ROSS "BROUTER"

UPPER LEFT: Log section enters "47" Electric Feeder and Turner and is gripped between rolls, electrically clamped by motor mounted within the ring. It is then fed forward for first inspection and brouting. **UPPER RIGHT:** Log section is turned to any angle and fed forward or backward to any position for further inspection and brouting. All the while securely clamped at any position or angle.

LOWER LEFT: Motors built within the ring feed stock forward or backward while is is being turned—to any angle. **LOWER RIGHT:** Stock may be turned three or more complete revolutions (either to right or left), while being fed forward or backward. This allows complete inspection and perfect cleaning—all rapidly accomplished by but one operator.

*Chief Engineer, Stetson-Ross Machine Company, Seattle. Presented at the dinner meeting held by the Pacific Section of TAPPI, Port Angeles, Washington, April 6th, 1937. Mr. Nicholson's paper was amplified by several reels of moving pictures showing modern wood preparation plants and their equipment in the Pacific Northwest.

cessful efforts made toward the development of equipment on which to bark large whole logs, and the operation has proved entirely practical mechanically.

Barking by the abrasion process, as in a drum barker, has also proved successful.

In one barking machine manufactured by the Stetson-Ross Machine Company of Seattle, the cants are passed through by means of power driven rolls, which are tilted at an angle so as to offer the operator a good view of the bark-covered surface. Suspended from above the material is a motor-driven concave cutterhead, provided with power-driven adjustments so that it can be raised and lowered or tilted to enable the operator to regulate the position and depth of cut.

An adjustment is also provided by means of which the cutterhead can be slewed around at an angle when it may be necessary to shrink or close the circle to fit the various curved surfaces of the logs. (U. S. and Canadian Patents.)

These adjustments are customarily carried out during the passage of the material through the machine.

It is a fact that in past times a final removal of defect has been done by hand from the chips, but such a laborious process has become contrary to our present standards of efficiency. Obviously it is better to practice to remove the defect from the log while it is confined, rather than allow the small pieces to be mixed with chips. Perhaps economic pressure is the force behind constant efforts toward mechanization. At any rate, the tendency is exemplified by some of the equipment that may be seen in the more recently constructed wood rooms.

Such a machine, manufactured by the Stetson-Ross Machine Company, is a boring and routing device, on which patents are pending, called the "Brouter" (trade-mark), in which the material to be worked on is clamped between rolls, which are so mounted in a ring-like framework that the piece can be tilted and moved longitudinally as may be required.

In a vertical position above the stock is a special drill which by means of two hydraulic cylinder attached to the sides upon which it is mounted, can be fed both vertically and horizontally at right angles to the line of travel of the stock. The feed rolls holding the material being worked on, and the rotating rings which they are mounted are driven by reversible two-speed motors.

Controls for all of these movements are centered in two levers by means of which the operator can move the material lengthwise, or turn it over to bring any portion of it in position to be worked on. The tool will cut in all directions, which leaves the operator free to concentrate entirely on handling the material with the least possible amount of lost motion and back tracking.

Thus it will be appreciated that by means of the movements it is possible to impart to the cant or slab, plus the vertical and horizontal feeding action of the tool; the capacity of this machine may be limited only by the efficiency of the operator and the cutting ability of the tool.

There were many interesting mechanical problems to be worked out during the development of this piece of equipment which would have been impossible without complete cooperation from every interested party.

Port Angeles Meeting Draws Large Crowd

The dinner meeting of the Pacific Section of TAPPI, held the evening of April 6th at the Port Angeles Country Club, Port Angeles, Washington, drew one of the largest dinner meeting crowds with 105 men attending.

"Wood Preparation" was the subject selected by Vice-Chairman George McGregor, and two papers were presented on the subject. Paul F. Leuth, sales engineer of the Sumner Iron Works of Everett, Washington, gave an interesting detailed description of methods and machinery employed in modern Pacific Coast pulp mill wood preparing plants and illustrated his paper with some forty lantern slides.

The second paper was given by Fred Nicholson, chief engineer of the Stetson-Ross Machine Company of Seattle. Mr. Nicholson briefly outlined the wood preparing problem and then exhibited several reels of excellent moving pictures taken by Stetson-Ross of wood cleaning plants in Pacific Northwest pulp mills. These pictures gave a clear idea of the present state of development in wood cleaning practices with emphasis upon the highly mechanized systems of removing bark from large cants. The Stetson-Ross Cant Barker and Brouter were shown at work in removing bark, knots and rot seams. The flexibility of these machines was evident in the pictures.

Both Mr. Leuth's and Mr. Nicholson's papers are presented in full in this number of PACIFIC PULP AND PAPER INDUSTRY.

Carl Fahlstrom, technical superintendent of the Longview Fibre Company and chairman of the Pacific Section of TAPPI, presided and introduced the speakers.

George S. Douglas, technical supervisor of the Washington Pulp & Paper Corporation of Port Angeles, was chairman of the meeting and arranged all details so the meeting ran smoothly. Chairman Fahlstrom and Secretary Earl Thompson complimented Mr. Douglas on his excellent work.

Two visitors from afar were introduced, Harold A. Erikson of the Svenska Flaktfabriken of Stockholm, Sweden, manufacturers of the Flakt dryer for pulp; and John D. Rue, of the Hooker Electrochemical Company of Niagara Falls, New York.

This was the last of the fall and winter dinner meetings held by the Pacific Section of TAPPI, which proved an even greater success from the standpoint of attendance than the meetings of the year before.

Meetings were held in five different towns and cities to enable the largest possible number of mill men to derive the benefits of the papers presented and of the discussions which follow. The dinner meetings were arranged for October 6th at Everett, Washington; January 26th at Portland, Oregon; February 4th in Vancouver, B. C.; March 2nd at Olympia, Washington, and April 6th at Port Angeles, Washington.

During the summer the officers of the Pacific Section of TAPPI will arrange a schedule of dinner meetings for the fal and winter of 1938-1938.

The following men attended the Port Angeles dinner meeting:

Jerry Alcorn, Weyerhaeuser Timber Co., Everett; Ray Austin, Washington Pulp & Paper Co., Port Angeles; B. A. Bannan, Western Gear Works, Seattle; C. Vernon Basom, Fibreboard Products Co., Port Angeles; T. H. Beaune, Fibreboard Products Co., Port Angeles; A. F. Benson, Fibreboard Products, Inc., Port Angeles.

Chas. Belvin, Chromium Corp. of America (3112 N. E. 24th Ave.), Portland, Ore.; A. L. Bibbins, Electric Steel Foundry (2724 1st South), Seattle; Paul Blatter, Olympic Forest Products Co., Port Angeles; L. D. Blodgett, U. S. Forest Service, Port Angeles; Jim Brinkley, James Brinkley Co., Seattle; J. W. Bonnar, Fibreboard Products, Inc., Port Angeles.

A. F. Brunson, National Paper Products, Port Townsend; H. E. Bukowsky, National Paper Products, Port Townsend; P. G. Cannon, Olympic Forest Products Co., Port Angeles; Evert A. Carlson, Olympic Forest Products, Port Angeles; H. J. Cathcart, Olympic Forest Products, Port Angeles; Henry V. Charnell, Jr., Olympic Forest Products, Port Angeles.

O. S. Cauvel, Washington Pulp & Paper Co., Port Angeles; E. J. Cavanaugh, Fibreboard Products, Port Angeles; George W. De Sellem, Westinghouse Elec. & Mfg. Co., Seattle; G. S. Douglas, Washington Pulp & Pulp Paper Co., Port Angeles; Ray Dupuis, Washington Pulp & Paper Co., Port Angeles; Geo. E. Durkee, Shaffer Pulp Co., Tacoma.

E. F. Drake, National Paper Products Co., Port Townsend; R. E. Drane, St. Helens Pulp & Paper Co., St. Helens, Ore.; M. L. Edwards, Weyerhaeuser Timber Co., Longview; Girard C. Eck, Rainier Pulp & Paper Co., Shelton; Harold A. Erikson, A. B. Svenska Flaktfabriken, Stockholm, Sweden; Carl Fahlstrom, Longview Fibre Co., Longview.

James D. Fraser, Weyerhaeuser Timber Co., Everett; Harold Thomas, Olympic Forest Products, Port Angeles; William R. Gibson, Shibley Co., Seattle; Howard C. Graham, Washington Pulp & Paper Co., Port Angeles; H. M. Gustafson, General Electric Co., Seattle; Rolla W. Halbert, Olympic Forest Products, Port Angeles.

R. S. Hanchett, Fibreboard Products, Port Angeles; John S. Hardy, Olympic Forest Products, Port Angeles; E. N. Harris, Olympic Forest Products, Port Angeles; Tom Hargreaves, Washington Pulp & Paper Co., Port Angeles; Nelson Hartnagle, Fibreboard Products, Port Angeles; H. A. Hauff, Weyerhaeuser Timber Co., Longview.

Henry Hendrickson, Olympic Forest Products, Port Angeles; Wm. S. Hodgson, Fibreboard Products, Inc., Port Angeles; Albert Hooker, Hooker Electrochemical Co., Tacoma; Geo. W. Houk, Hooker Electrochemical Co., Tacoma; R. C. Hutchinson, Olympia Forest Products, Port Angeles; H. M. Jones, Ohio Knife Co., Seattle.

B. P. Jones, Westinghouse Electric & Mfg. Co., San Francisco; Meder Johnson, Olympic Forest Products, Port Angeles; G. L. Johnston, Olympic Forest Products, Port Angeles; B. L. Kerns, Westinghouse Elec. & Mfg. Co., Seattle; R. L. Kettenring, Rainier Pulp & Paper Co., Shelton; Glengarry King, Washington Pulp & Paper Co., Port Angeles.

M. E. Kinsey, Rainier Pulp & Paper Co., Shelton; John O. Kjome, Scientific Supplies Co., Seattle; Geo. H. Krueger, Olympic Forest Products, Port Angeles, Dr. E. C. Lathrop, Crown Zellerbach Corp., Camas; Clark Lewis, Weyerhaeuser Timber Co., Longview; Nels G. Lindh, National Paper Products, Port Townsend.

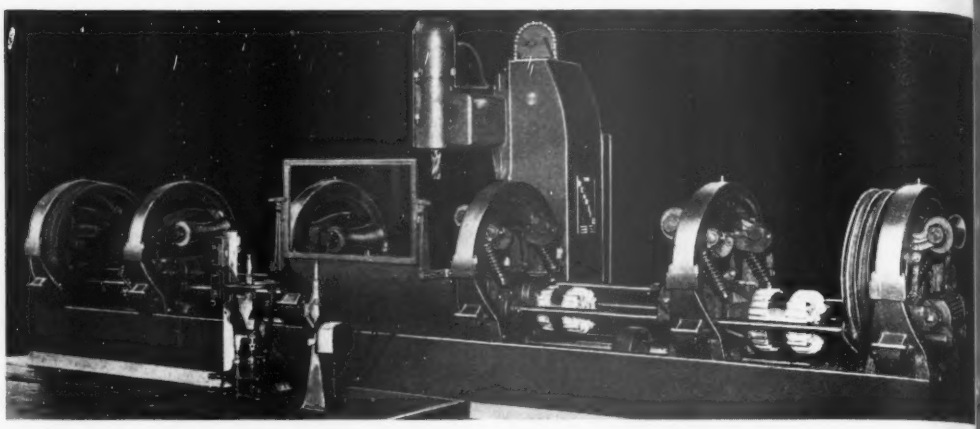
C. M. Linden, Weyerhaeuser Timber Co., Everett; W. J. Lowndes, Olympic Forest Products, Port Angeles; Paul F. Lueth, Sumner Iron Works, Everett; A. H. Lundberg, Seattle; E. Clair McCormick, Washington Pulp & Paper Corp., Port Angeles; H. J. Metcalf, Fibreboard Products, Port Angeles.

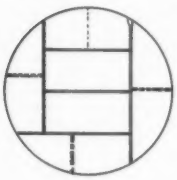
C. T. Mulledy, Olympic Forest Products, Port Angeles; Charles A. Newhall, State of Washington Dept. of Health, Seattle; Fred Nicholson, Stetson Ross Machine Co., Seattle; E. A. Norton, Weyerhaeuser Timber Co., Everett; Joseph W. Peckham, Bristol Co., Seattle; Raymond Porter, Washington Pulp & Paper Co., Port Angeles.

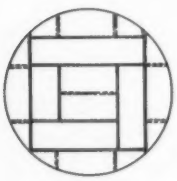
W. T. Pritchard, Stetson Ross Machine Co., Seattle; Fred Radke, Olympic Forest Products, Port Angeles; W. H. Rambo, Olympic Forest Products, Port Angeles; E. P. Read, Washington Pulp & Paper Corp., Port Angeles; Edward

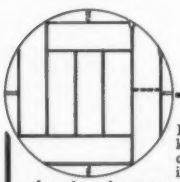
The STETSON-ROSS WAY is to Bark and Brout Larger, Longer Pieces of Pulpwood—

as demonstrated in moving picture at TAPPI Meeting, Port Angeles, April 6th.









PULP MEN of the Pacific Northwest know large logs must be cut into cants, similar to above suggestions, if ingrown bark, knots and rot are to be found and removed. * * * They also know the advantages gained by cutting cants in longer lengths (10 to 20 feet):

1—For economy in handling.
2—For saving of wood by eliminating unnecessary saw kerf.
3—For the proper chipping of a larger percentage of each piece.

The Stetson-Ross "Brouter" (Trade Mark) affords the very latest and most efficient method of pulpwood cleaning. A 45-H.P. motor operating at 10,800 R.P.M. makes possible extremely high speed production. The turning and setting table has been developed primarily to enable the cutting out of ingrown seams and black knots, regardless of their position in the cant. (Patents applied for)

HIGH FREQUENCY "44-47" BROUTER AND "43" LOG SECTION BARKER

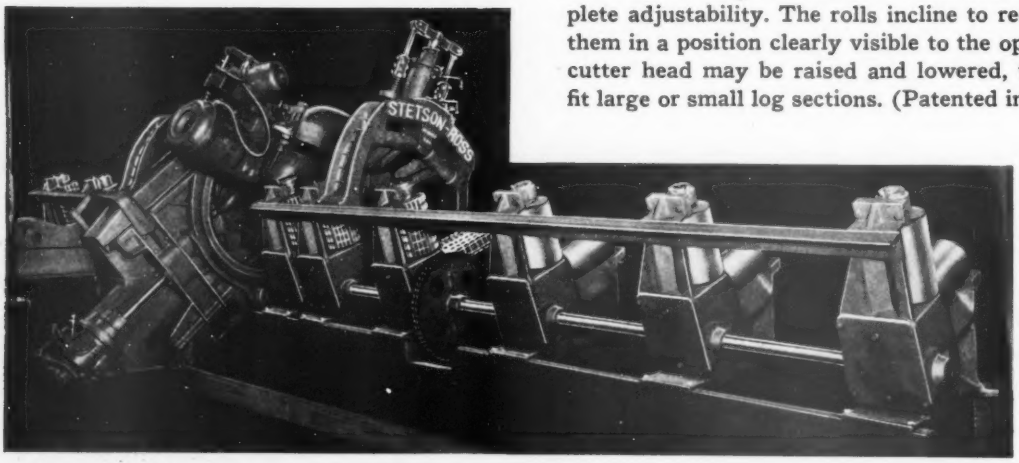
Both Developed and Perfected by the

STETSON-ROSS MACHINE COMPANY

SEATTLE, WASH., U. S. A.

To obtain clean chips it is first necessary to cut logs into cants or log sections, exposing the black knots, ingrown bark, rot and other defects. The Stetson-Ross Ring Type Barkers and Brouters (Trade Mark) have been developed especially to remove all of these defects.

The outstanding feature of the Stetson-Ross Barker is complete adjustability. The rolls incline to receive cants and feed them in a position clearly visible to the operator. The concave cutter head may be raised and lowered, tilted and slewed to fit large or small log sections. (Patented in U. S. and Canada)



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We welcome inquiries on these machines or any other equipment that we manufacture. Individual requirements studied and needed machines developed. Write, or phone (Seattle, MAin 4188).

D. Rich, Olympic Forest Products, Port Angeles; H. K. Roberts, Washington Pulp & Paper Corp., Port Angeles.

John D. Rue, Hooker Electrochemical Co., Niagara Falls, N. Y.; Rex Russell, Longview Fibre Co., Longview; Harlan Scott, Pacific Pulp & Paper Industry, Seattle; Winston Scott, Rainier Pulp & Paper Co., Shelton; James T. Sheehy, Grays Harbor Pulp & Paper Co., Hoquiam; K. Shibley, Shibley Co., Seattle.

P. S. Simcoe, National Paper Products, Port Townsend; Fred R. Sievers, Crown Willamette Paper Co., Camas; Joe Sparks, Olympic Forest Products, Port Angeles; H. A. Sprague, Olympic Forest Products Co., Port Angeles; H. E. Springer, Olympic Forest Products, Port Angeles; Philip E. Sullivan, Ingersoll Rand Co., Seattle.

Robert Tabke, Rainier Pulp & Paper Co., Shelton; Earl G. Thompson, Great Western Electro-Chemical Co., Seattle; R. G. Tower, The Bristol Co., San Francisco; A. L. Tickner, National Paper Products, Port Townsend; L. C. Van Arsdale, Olympic Forest Products, Port Angeles; Wm. A. Veech, Olympic Forest Products, Port Angeles.

J. P. Venables, Washington Pulp & Paper Co., Port Angeles; J. J. Wallitner, National Paper Products, Port Townsend: L. E. Warwick, Washington Pulp & Paper Corp., Port Angeles; F. W. Whitney, Port Angeles; S. H. White, City of Port Angeles, Port Angeles; N. T. Widmann, Olympic Forest Products, Port Angeles.

Parks at Columbia River

Tom Parks, who was chief engineer for the Hawley Pulp & Paper Co., and more recently with the Fir-Tex Insulating Board Co. at St. Helens, Ore., in the same capacity is now chief engineer for the Columbia River Paper Co. at Vancouver, Wash.

Douglas With Mead

George S. Douglas, technical supervisor of the Washington Pulp & Paper Corporation's news print mill at Port Angeles, Washington, will leave shortly before the first of May to join the Development Division of The Mead Corporation at Chillicothe, Ohio.

Mr. Douglas will be succeeded at Port Angeles by Howard C. Graham.

GEORGE S. DOUGLAS
Joins The Mead Corporation

Incorporate New B. C. Pulp Company

Port Renfrew Pulp & Lumber Company has been incorporated at Victoria, B. C., with capital of $385,000.

J. Y. Copeman, 531 Bastion Street, Victoria, signed the papers of incorporation, but declines to describe company's plans. It is presumed that the company will engage in sawmilling at first and later possibly expand into pulp production. Location is at the southwestern tip of Vancouver Island.

Ryer In Charge

Captain K. E. Ryer, for eleven years associated with the enterprises of F. W. Leadbetter in British Columbia, is in charge of the Vancouver office of Port Mellon Operating Company, in the Standard Bank Building, which recently started production of pulp on Howe Sound.

Hughes Back On Job

Sam Hughes, office manager for the Crown Willamette Paper Co., division of Crown-Zellerbach Corp., is back in the office at Portland after recovery from an illness of several months.

Huyck Picture Shown at Vernon

A motion picture showing the method of manufacturing woolen felts used in paper making was shown at the Vernon plant of the Fibreboard Products Inc. through the courtesy of F. C. Huyck & Sons Co. Dave Jordan of Huyck and John Fulton of the Pacific Coast Supply Company were responsible for bringing the picture to the plant. The picture was complete in its description of the process showing all operations from the shearing of the sheep to the carding of the nap on a finished two hundred inch felt.

Converting Addition Completed

The new converting plant addition was recently completed at Camas, providing 40,000 sq. ft. additional storage space. It is a two story building, with excellent lighting facilities, and with maple hardwood floor to withstand hard usage. The structure measures 105 by 200 feet.

An efficient conveyor system distributes the cartons of toilet tissue and similar products within the plant, and permits rapid loading of rail cars and trucks.

The Tissue Co., manufacturers of paper towels and napkins, have rented half of the second floor for its use.

Fleming Visits Port Mellon

General A. S. Fleming, Portland, Ore., vice-president of Port Mellon Operating Company, was a recent visitor to the mill.

Supply Company to Handle Entire Line

The Pacific Coast Supply Co. has extended its arrangement with Heller & Merz division of Calco Chemical Co., Inc., whereby they are now exclusive agents for the products of the Calco Chemical Co., Inc. in the states Washington, Oregon and California, including dyes for textiles, paints, leather, etc. Heretofore the company has handled only dyestuffs for the paper trade.

Under the present arrangement, William C. Marshall, Jr., who has been the technical representative of the Calco Chemical Company in this district, will now devote his entire time to products sold by the supply company.

B. C. Pulp Running Full

Good demand for bleached sulphite pulp continues according to Lawrence Killam, president of B. C. Pulp & Paper Company, which is proceeding with a $700,000 program to place both the mills at Woodfibre and Port Alice on an exclusive bleached sulphite production basis. Port Alice always has handled that product, although mechanical installations are being made there to improve the quality. At Woodfibre the changes represent more revolutionary adjustments, and these will not be completed until late summer because of the delayed delivery of equipment.

Basic price for bleached sulphite on the Atlantic during the first quarter of 1937 has been $54 to $55 a ton, says Mr. Killam, although quotations have varied considerably. Increasing world consumption of rayon, cellophane, plastics and high grade paper is expected to bring about a shortage in bleached sulphite, especially since increased production is not likely in the Scandinavian countries; Russia will probably consume most of its own production, and Europe will obsorb most of the increased Finnish export.

Box Makers To Meet at Del Monte

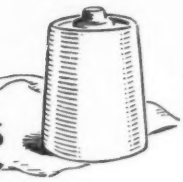
Pacific Coast Paper Box Manufacturers Association holds its 23rd annual convention at Del Monte June 28-30. It is likely the 1938 convention will go to the Pacific northwest.

Charles Ruble, Standard Paper Box Corporation, Los Angeles, is president of the association. Cliff D. Allen, Western Paper Box Co., Oakland, is chairman of the convention committee.

Other association officers are vice-president, F. C. Kewell, Western Paper Box Co., and treasurer, Oscar Bergland, Union Paper Box Manufacturing Co., Seattle. Hugh Peat has been secretary for 14 years. The convention date was set at a meeting of the executive committee April 2.

During the convention there will be a golf tournament for the association's challenge cup, which is held at present by Richard Schmidt, president of the Schmidt Lithograph Co., San Francisco.

Rayon and other CHEMICAL USES OF WOOD PULP



Ethyl Cellulose May Provide New Pulp Market

In a short article in the January number of Chemical & Metallurgical Engineering J. M. DeBell, formerly chemical engineer with the Hercules Powder Company at Wilmington, Delaware, describes the qualities and potential uses of ethyl cellulose.

Ethyl cellulose, says Mr. DeBell, was first proposed as a commercial material by Dr. Otto Leuchs and Dr. Leon Lilienfeld in 1912. It is, chemically, the ether of cellulose and thanol. It is marketed as a white granular powder. The procedure for manufacture is somewhat standardized. Wood or cotton cellulose of carefully controlled viscosity and moisture characteristics is treated with sodium hydroxide in water, by mastication, grinding, or steeping and pressing. The resulting alkali cellulose is then subjected to an alkylating agent, usually ethyl chloride, but occasionally ethyl sulphate. The reaction lasts over a period of hours and when completed the excess reactants and byproducts are removed by distillation and washing. The ethyl cellulose which has been formed may be purified by simple washing or by solution and reprecipitation.

"Early investigators all called attention to the desirable properties which are attainable with ethyl cellulose, but only recently has the significance of these properties begun to be appreciated. Ethyl cellulose of about 47 per cent ethoxy not only has the characteristic toughness of the cellulose derivatives, but also possesses low flammability with no undesirable combustion products; heat stability; light stability; extraordinary flexibility even when unplasticized and at temperature of CO_2 "snow"; thermoplasticity; extensibility; inertness to alkalis and dilute acids; excellent miscibility with oils, waxes and resins; and solubility in low-cost solvents.

"As in the case of other common cellulose derivatives, ethyl cellulose can be furnished in various viscosities, depending upon the degradation to which the cellulose has been submitted at any stage in its processing, either before or after etherification . . . The ethyl cellulose manufactured under properly controlled conditions retains its flexibility unimpaired for at least several years.

"An outstanding characteristic of ethyl cellulose is its miscibility with a wide range of solvents, resins, waxes, oils, and plasticizers, with which incorporation is often effected by heat alone. It is readily soluble in esters, chlorinated solvents, ring hydrocarbons, alcohols, and most vegetable oils; but is insoluble in petroleum hydrocarbons. It is plasticized readily by phthalates, aryl phosphates, butyl stearate, chlorinated diphenyl, and Hercolyn (hydrogenated methyl abietate); and dissolves 'in a wide variety of resins. Tung oil and paraffin, which by themselves are distinctly incompatible with ethyl cellulose, can be put together in specific mixtures if sufficient use is made of fatty acids, acid resins, or ester resins as a third constituent.

"A great number of the uses so far developed for ethyl cellulose depend on its toughening action on oils, waxes, and resins; its flexibility; and the fact that it can often be applied by heat. Thus, it is finding application as a thermoplastic adhesive for transparent wrapping material; and as a bodying material in heat transfers to textiles (pictures, lettering, and the like transferred from a paper backing to the textile web by pressing with a hot iron).

"In the plastics field progress has been relatively slow, chiefly because of the high price of the material. Since ethyl cellulose handles so excellently under heat, and since only small amounts of plasticizer are required (10-40 per cent on the cellulose ether), expansion in this field appears quite logical. Heat-extruded coverings for bare wire or cotton-covered conductors are readily accomplished even with thicknesses of the order of one mil.

"The plastic properties also favor use as a pigment grinding base, since all ordinary pigments including the recalcitrant yellows and blues can be incorporated in ethyl cellulose by heat on rolls or in masticators, with no fear of combusion or undesirable color effects. The resultant chip can be incorporated in nitrocellulose lacquer or oil varnish. Ethyl cellulose in safety glass shows excellent cold break characteristics.

"The lacquer field naturally emphasizes the flexibility and chemical inertness of ethyl cellulose in flexible lacquers for rubber, cloth, or paper; bronzing lacquers; and mixtures with drying oils. The last deserves special mention since ethyl cellulose can be added in general to oil varnishes to reduce greatly the drying time. Present indications are that the addition of 5 to 10 per cent of ethyl cellulose will materially reduce the drying time of oil varnishes, but special precautions have to be taken in incorporating the mixtures. With brittle miscible resins the addition of 10 per cent ethyl cellulose, with or without plasticizer, furnishes a material with toughness similar to shellac.

"Ethyl cellulose appears to be an ideal textile coating material, but its use as a textile fiber appears somewhat limited at present because of its low softening point. If, instead of the usual 47 per cent ethoxy, the ethylation is carried to 50 per cent or more, the resulting ethyl cellulose has a much higher softening point and forms a textile fiber which has a marked improvement in "hand."

"Besides the toughening effect previously noted, ethyl cellulose dissolved in small quantities in waxes or tarry materials, has a distinct tendency to raise the melting point, prevent crystallization, reduce shrinkage, and decrease the frangibility at low temperatures. Thus, a coal tar which is fluid at room temperature has its melting point raised to 88 deg. C. by the addition of 10 per cent ethyl cellulose; montan wax has its melting point raised from 70 deg. C. to 115 deg. C. by the addition of 30 per cent ethyl cellulose; and stearic acid, stearine pitch, tallow, and fatty acids can be "hardened" similarly."

Estimate Japan's 1937 Rayon Production

One of the outstanding Japanese rayon producers, Seita Hisamura, estimated in Yokohama during February that Japan's 1937 rayon output will reach 330,000,000 pounds even with the present curtailment plan continued. If this production is attained it will be 60,000,000 pounds above the 1936 total (rayon staple fiber not included in this estimate).

China To Build Rayon Plants

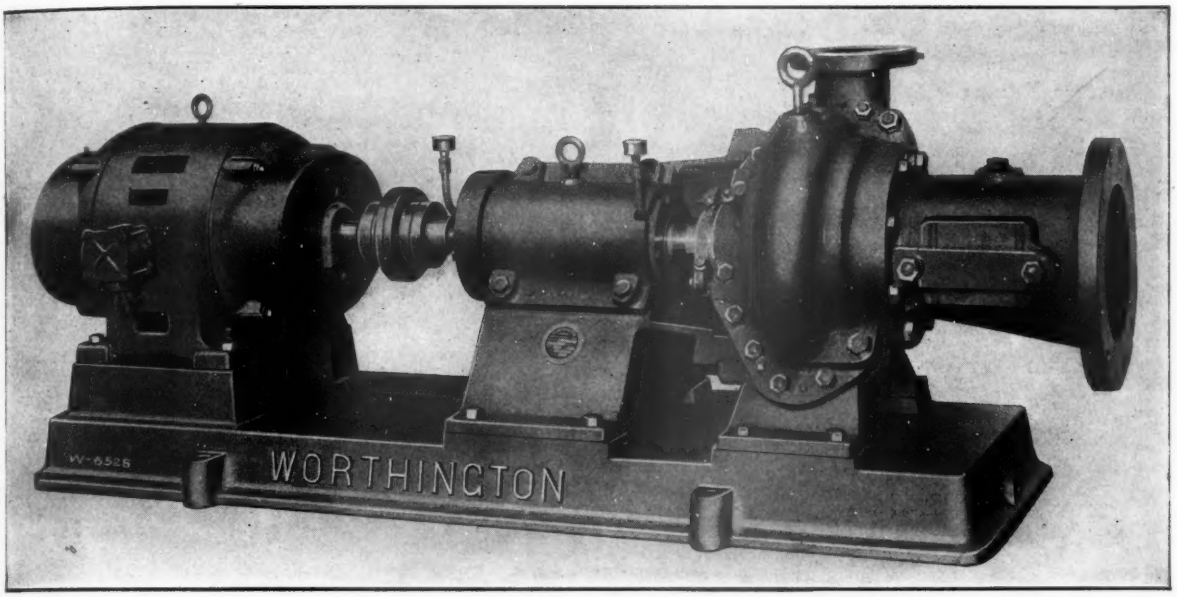
Rayon plants are to be established in China as semi-governmental enterprises under a proposal of the Ministry of Industry approved by the Executive Yuan on March 1. The first plant is to be located at Wusih (about 100 miles from Shanghai) and will have a daily capacity of 3 tons and represent a capital investment of 4,000,000 yen, according to present plans. (Current exchange value of yuan about $0.296, U. S. currency). The Ministry also decided to limit the total capital of all rayon plants to be established in China to 20,000,000 yuan and the total daily output to 50 tons in order that the domestic raw silk industry may not be affected adversely by this development.—Radiogram, March 5, from Commercial Attache Julean Arnold, Shanghai.

During 1936 German interests negotiated with Canton authorities for the erection of a rayon plant with an annual capacity of 2,400,000 pounds at an estimated cost of $750,000 (U. S. currency). Financial difficulties were encountered, and the project was in abeyance at the end of 1936. In Manchuria, 5 rayon pulp plants (4 of which are Japanese-owned) were operating in 1936, but it is reported that the local government plans to amalgamate these concerns into a single enterprise in order to control the industry.—Trade Commissioner A. Viola Smith, Shanghai.

French Rayon Production

Production of rayon (excluding staple fiber) in France during 1936 is estimated by a local authority at 30,000,000 kilograms, against 25,000,000 in 1935 and 26,000,000 in both 1933 and 1934. (Kilogram equals 2.2046 pounds). The year 1936 was characterized by increased costs of manufacture, the consequent further loss of foreign markets to countries of lower production costs, marked progress in the use of rayon in the domestic market, strikes, and the application of mandatory social reforms. Exports of rayon for the first half of 1936 were about 50 per cent of those of the first 6 months of 1935, and in the last half of 1936 fell to one-third the volume of the corresponding period of 1935.

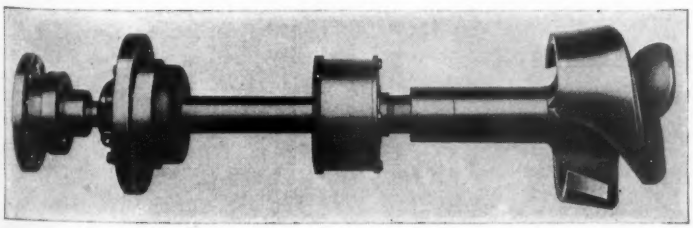
Worthington Centrifugal Paper Stock Pumps



...with these exclusive features:

- For highest consistencies
- Low speeds
- Non-clogging
- Non-air binding
- Large suction cone inlet
- Large impeller suction eye

Note large diameter of suction cone at both outer end and at impeller entrance... as compared with discharge opening above.



Combined screw-conveyor radial-vane type impeller gives positive displacement and assures approximately constant capacity at variable suction heads.

100% open, front and back... no binding by air or stock... positively non-clogging. Suction head pressure on stuffing box.

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The rayon yarn output in the first 2 months of 1937 was comparatively normal notwithstanding the application of the 40-hour week. Producers of viscose yarn were busy on domestic orders for immediate delivery. Prices of rayon yarn have been advancing, but both the domestic weaving and knitting industries have been absorbing increasing quantities of rayon yarn, thereby compensating to a considerable extent for the loss of foreign sales.

German Rayon Increases

The "Four-Year Plan" envisages increased domestic production of textile raw materials (mainly synthetic fibers) with a corresponding diminution in imports of cotton, wool and other natural fibers. In the efforts now being made to achieve this end, staple fiber occupies an outstanding position, and there has been a steady expansion in plants for its production during the past 2 years. The output of staple fiber has proven inadequate, however, for current demands, and the mills' production is reported sold a long time in advance. The production of staple fiber in 1935 approximated 16,000,000 kilograms. The industry's capacity increased to as high as 40,000,000 to 50,000,000, in 1936 and is expected to rise further to 70,000,000 to 80,000,000 kilograms in 1937, according to some estimates. Doubts are expressed in local trade circles that the high production figures hoped for in 1937 can be realized, even after the plants now under construction attain their maximum production schedules.

For many years German imports of rayon and staple fiber have exceeded exports of these commodities. In 1936 exports of rayon were greater than imports while imports of staple fiber continued substantially higher than exports, in point of quantity.

In 1935 Germany exported 5,454 metric tons of rayon (not including staple fiber) valued at $8,237,000, and in 1936 exports amounted to 8,523 metric tons valued at $11,215,000. Imports of rayon (not including staple fiber) in 1935 totalled 6,703 metric tons valued at $11,107,000 and in 1935 imports were 6,088 metric tons of a value of $9,472,000.

Italian Rayon Production Up

Demand for synthetic textile fibers during January and February was greater than the domestic mills could supply, according to trade reports. Some mills were said to have contracted for their capacity production up to the end of June and even later, and mills were refusing further orders until adequate supplies of raw materials are assured. Rayon production in Italy during 1936 is estimated in the Italian trade press at about 40,000,000 kilograms, or practically the same quantity as in 1935. The increase in production of synthetic fibers occurred almost entirely in the output of staple fiber which is estimated to have amounted to 45,000,000 to 50,000,000 kilograms, or 30 to 40 per cent more than the 1935 production.

No advance in the prices of rayon or staple fiber had been reported up to the end of February, when quotations were 6.60 to 7 or 8 lire per kilogram for staple fiber, according to length, and 10 to 22 lire per kilogram for rayon, according to fineness. (Lira equivalent to $0.0526 at average exchange rates in February.) There were indications, however, that prices would increase in the near future owing to rising raw material and labor costs.

An even more urgent demand for staple fibers for the manufacture of textiles for the domestic market was reported to have existed in the two months than in preceding months owing to the steady drain on available stocks of cotton and mixed textiles and the restrictions on the use of imported raw cotton for manufacture of goods for home consumption. Mills are using steadily increasing quantities of staple fiber in admixture with cotton and other fibers in the production of goods for the domestic market and some fabrics are being made from staple fiber alone.

The rayon market is less affected by this situation owing to its higher price but the demand for rayon continued steady during period. The trade reports an increasing foreign demand for synthetic fibers, particularly staple fiber. Sales abroad continued to absorb the most of the Italian production of rayon while exports of staple fiber up to this time have comprised a relatively smaller part of the production.

Records of the Milan Consulate General show declared exports of 104,000 pounds of rayon from this district to the United States in January, or practically the same quantity as in December, while exports of staple fiber increased by 105,000 pounds to 550,000 in January.

Brazilian Mill To Increase Output

A mill in Sao Paulo producing rayon by the viscose process is reported recently to have received a shipment of new machinery from Italy and Germany, when installed, will increase the output of the plant from its present capacity of 3,000 kilograms of yarn per day to 6,000 kilograms. It is understood that the inability of this mill to keep abreast of the heavy volume of orders was responsible for the acquisition of new equipment.—Trade Commissioner J. Winsor, Ives, Rio de aneiro.

Sample At Powell River

Glen Sample of Lake Forest, Ill., a director of Powell River Company, visited the B. C. newsprint mill town a few days ago on his way to the Orient with Mrs. Sample.

Powell River Teams To Compete in First Aid

Employees of the Powell River Company formed the Powell River First Aid Society some years ago, and they have now decided to enter outside competition in ambulance work. Robert H. Scanlon, now a director of Powell River Company,s was the club's original president. A. W. Clapp has been the directing head for some time.

Bristol Appoints Tower Coast Manager

The Bristol Company, Waterbury, connecticut, announces the promotion of Mr. R. G. Tower to Pacific Coast district manager with headquarters in the Rialto Building, San Francisco. Mr. Tower's promotion consolidates the company's well developed sales and service organization on the West Coast, which includes branch offices at 747 Warehouse Street, Los Angeles; Rialto Building, San Francisco, and 5525 White Building, Seattle, and a service laboratory and branch factory at 311 Minna Street, San Francisco.

Mr. Tower's engineering training and past experience fit him particularly well to carry on his new duties. After leaving college, he was employed in the instrument departments of the Buick Motor Company and the Lincoln Motor Company. A sales engineer of The Bristol Company since 1922, during which time he was connected with the New York, Chicago, Philadelphia, Pittsburg, and St. Louis offices, serving as district manager of the St. Louis office for a number of years, Mr. Tower has gained an unusually broad background of instrument experience, particularly in the oil, gas, public utility, pulp and paper, canning, metal, lumber and rubber industries.

Under Mr. Tower's direction the company's facilities will be so further expanded as to make available prompt and efficient service to the users of Bristol's recording and controlling pressure gauges, liquid level gauges, thermometers, pyrometers, flow meters, tachometers, humidity instruments, process cycle instruments, and other allied instruments in the Pacific Coast states.

This planned program of expansion is part of a broad policy being carried out by the company throughout the country, in Canada, and in England to meet the increased demand for control instruments by industrial plants not only as a means of standardizing the quality of their products but also as a means of reducing operating costs.

R. G. TOWER,
Pacific District Manager
The Bristol Company,
San Francisco

"Our Ambition is to grow Wool fine enough for a Kenwood Felt!"

KENWOOD WOOL PRODUCTS

F. C. HUYCK & SONS—KENWOOD MILLS, ALBANY, N. Y.

Wood Preparation

by PAUL F. LEUTH*

Most of you, and especially those who have been engaged in the manufacture of wood pulp, no doubt, are quite familiar with the various methods and means of preparing the wood from which it is made.

While there are various processes for converting wood into pulp, the preparation of the wood for these processes is all pretty much the same, at least to a certain degree.

No doubt many of you have had wood room problems to solve and have given the subject of wood preparation a great deal of thought coupled with experience, and for this reason there is little of importance or new that is left to be said regarding the same.

With this thought in mind no attempt will be made to spring new ideas or revolutionize present tried and proven methods for preparing wood, but simply to review these methods with the hope that it may bring forth some constructive criticism.

The value of associations and meetings such as these should not be measured entirely by how much an individual can absorb and take away, but also by how much he can contribute to the subjects under discussion.

Of late wood preparation seems to be receiving more of the thought and attention, which it justly deserves.

To do justice to the subject of wood rooms and the preparation of all the various kinds or species of woods suitable for making pulp for the various processes and purposes for which it is to be used, would require volumes to cover in all detail.

While recent developments have and will be made in the methods of making various kinds of pulp, the requirements for chips or wood for making same seems to remain more or less standard. The entire wood room process is simply a mechanical one and the solution of problems pertaining to it for the most part, require only good horse sense.

Many times decisions affecting the design of wood rooms, as well as the selection of most suitable machinery and equipment for them, are left to the advice and judgment of the inexperienced and unskilled, which usually results in an unsatisfactory operation.

The preparation of wood in modern pulp mills, in my estimation, is of primary importance as it is analogous to the food we eat and which we require to build body and blood. We aim to choose good, clean, wholesome food to eat and in so doing prevent ills and disorders which are so apt to occur if we become careless in the proper selection and preparation.

The wood preparation room and digester room are the kitchen in which the food is prepared and cooked for the pulp mill, and are very important units of the whole operation.

The entire product of the mill depends so much on the functions of these two units and when disorder occurs in either there is usually an S.O.S. call for the doctor.

If this is true, why then does not the preparation of the raw material have the same careful consideration in the planning as the other units of the mill?

Usually the wood room is the last item on the list for consideration and, in construction, usually receives a lick and a promise. Then it is necessary to rush the planning and building that it may not delay the starting and operation of the well planned and expensive major portion of the mill. In this last minute rush many of the details are overlooked which, if given the proper thought, would result in smoother, coordinated and less costly operation.

A continuous and adequate supply of well prepared and clean wood is essential to uninterrupted operation and to be assured of this, the wood room must have the most careful consideration in its planning and the selection and proper arrangement of its machinery and equipment.

The most suitable methods employed in the preparation of wood depends upon the kind and size of timber available, the sizes to which it may have to be reduced for convenience in handling, and the extent to which it is desirable to be cleaned or prepared before the chipping operation.

Careful consideration and study should be made of the wood to be used in order to obtain the smallest amount of waste in the breaking down and cleaning processes.

Timber of sizes large enough in diameter to require breaking down to sizes in cross section convenient for handling should be analyzed before selecting the method for this process. Some species of wood have a very twisted or crossed grain and such are difficult to reduce on axe splitters. They also produce an excessive quantity of slivers which are waste by this method.

In the eastern and mid-western states, a great deal of the virgin stands of timber have been depleted and mills in these sections depend almost entirely on subsequent growths which consists of comparatively small trees, ranging from five inches to fifteen inches in diameter.

The methods employed in preparing timber of such small dimensions is therefore comparatively simple and less expensive as they require no break down mills for reducing logs to sizes convenient for handling and as is usually required in our western areas.

The machines usually used in these mills consist of drum barkers and disc barkers and in some instances knot borers are used for removing black knots.

In a discussion of the various methods and machines used in preparing wood it perhaps would be well to consider them in the following order:

Departments for breaking down live logs to desirable sizes; for barking; for cleaning; for making chips; for cleaning chips.

Department for Breaking Down Logs

There are two methods commonly used in breaking down the large timber:

One—by first cutting the logs into lengths varying from two feet to four feet, depending upon subsequent operations to be performed. This may be accomplished by a drag saw, chain saw, or circular swing cut off saws.

The swing cut off saw, with power to push the saw through the log, is the fastest method but its range for a single saw is limited to logs up to 42 inches in diameter.

Logs of larger diameters may be cut by two opposed circular cutoff saws set in line on opposite sides of the log and fed alternately through the log.

The drag saw, or chain saw, may be used for any size logs up to the largest diameters, but their operation is slower cutting with consequent reduction in capacity. It requires from two to two and a half minutes to cut a five-foot diameter log in two on the ordinary drag saw while the circular swing cut-off saw can cut a 42-inch log in two in about six to eight seconds.

The capacity of the drag or chain saws are approximately one-tenth that of the swing cut-off saw, and the swing cut-off saw is capable of from ten to fifteen cuts per minute.

The speed of sawing, of course, depends upon the kind and hardness of the timber to be cut, and the rate of which the log can be moved forward between cuts by the proper amount.

In mills requiring a large capacity using this method of breaking down logs it is advisable to use the swing cut-off saw for logs up to 42 inches in diameter and a drag saw for logs above 42 inches in diameter.

The two types of saws may be used either on the same line of log haul up or by having a separate log haul up for each saw. By using two log hauls the capacity may be further increased by segregating the logs, conveying logs up to 42 inches in diameter to the swing cut-off and the larger logs to the drag or chain saw.

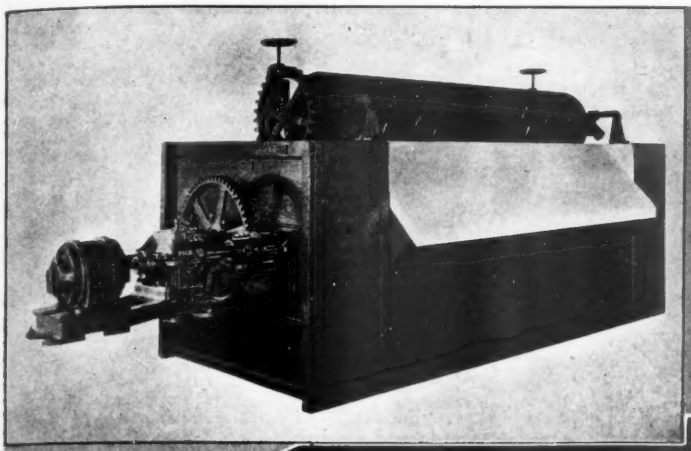
After cutting logs into blocks of desired lengths the next operation is to split them into sizes of required sectional area. This may be accomplished by axe splitters operating either by mechanical power or by direct acting steam cylinders where the axe head is secured to the end of the piston rod.

Cylinder operated axe splitters are built either with the cylinder lying in a horizontal position or mounted in a vertical position in a rigid steel superstructure.

The horizontal type is usually preferred for splitting blocks larger than 30 inches in diameter due to the fact that blocks much larger than this are too heavy to handle manually and up end in position on the anvil under the vertical type of splitter.

Blocks to be split on a horizontal splitter are usually conveyed by power on reversible conveyor chains from the cut-off saw into position in the bite of

*Sales Engineer, Sumner Iron Works, Everett, Washington. Presented at the Dinner Meeting, Pacific Section of TAPPI, Port Angeles, Washington, April 6th, 1937. Mr. Lueth illustrated this paper with 40 lantern slides of wood rooms and wood room equipment.



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Multiple Stage Washer

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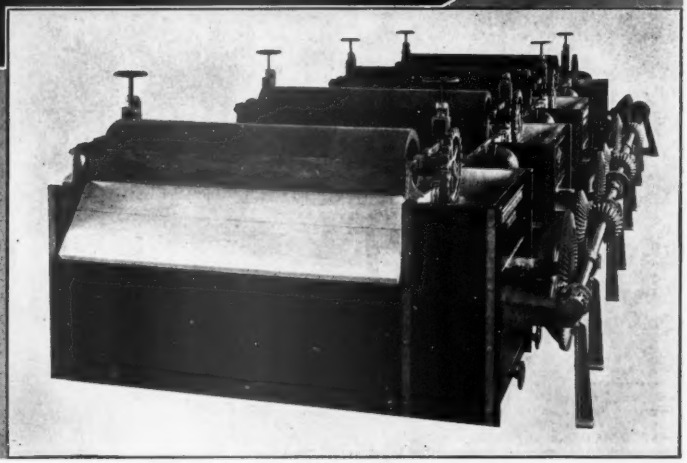

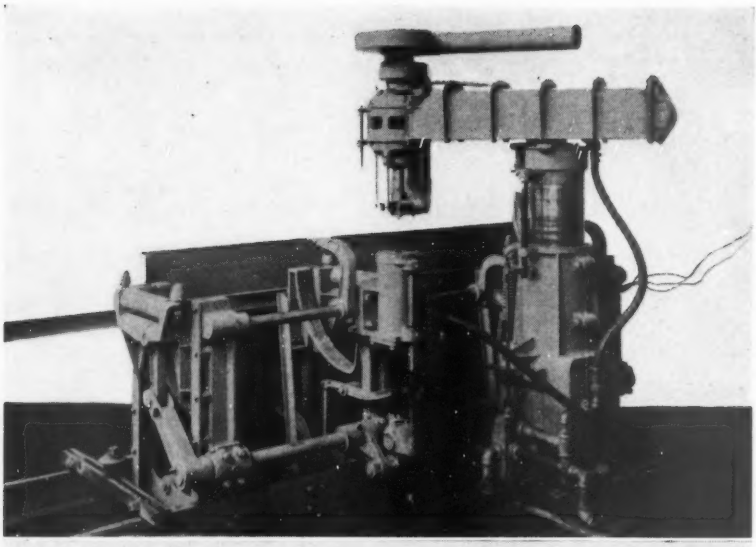

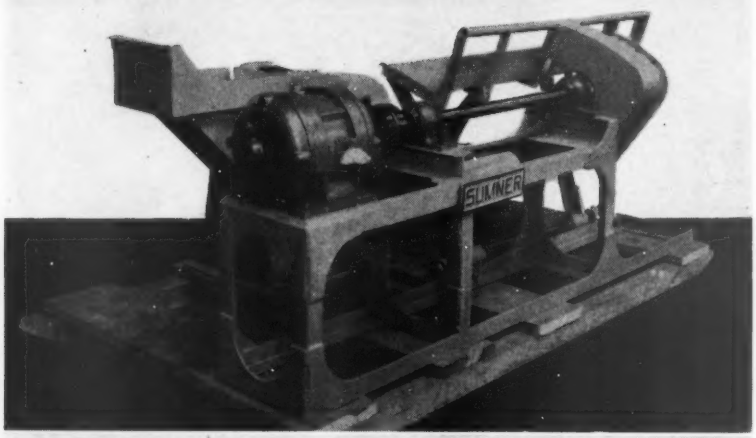

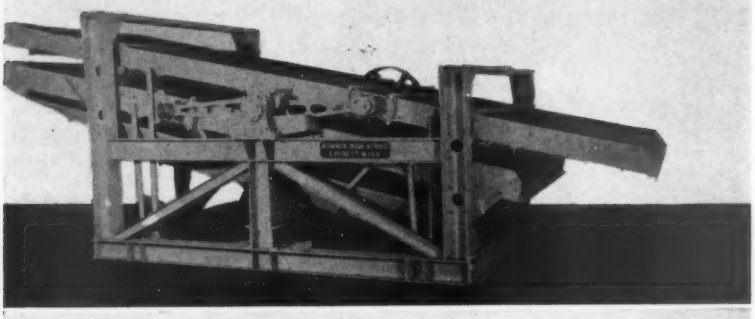

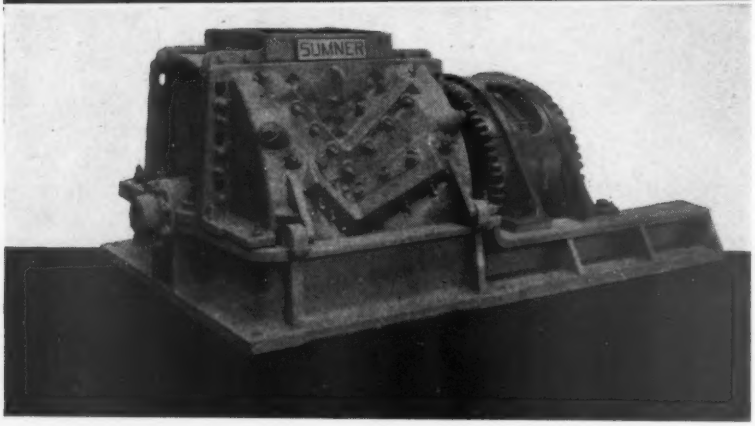

the splitter. These chains may be provided with means for raising and lowering blocks to bring the center of the block on the axe head center.

Due to inability to properly center some blocks on the axe head this operation results in making many slivers and for this reason the system is considered objectionable as most slivers cannot be used except to be put through the refuse hog and converted into fuel. On the vertical type of axe splitter, however, the blocks can be so positioned and centered as to quarter the blocks with practically no loss in slivers.

The other or second method for breaking down live logs is by means of the saw mill which, if properly designed and operated, is much the better method for reasons as follows:

1st—All sizes of logs can be cut up without difficulty.
2nd—Larger and longer cants, or billetts can be cut.
3rd—Greater capacity can be obtained in a given space.
4th—Cleaner cants or billetts.
5th—Less waste loss.
6th—Greater capacity per man.

While the machinery and equipment required in a saw mill for breaking down logs for pulp wood is primarily the same as that for making lumber, the operation and methods of sawing are somewhat different and simpler.

In the making of lumber it is important that operators of all machines cut the log or lumber to obtain the greatest amount of the highest grade or quality of lumber while in sawing for pulp wood it is cut for convenience of the operations to follow such as cleaning and chipping. For this reason the capacity in board feet per hour normally of a saw mill should be greater in sawing for pulp wood than in sawing lumber.

Briefly, the machinery for a mill to saw pulp wood is the—

Log Haul Up,
Log Kicker,
Log Loader and Deck Stop,
Steam Nigger,
Carriage,
Band Mill,
Live Rollers,
Transfer Skids,
Edger,
Slasher,
Trimmer,

Refuse Hog and Conveyors.

A mill for sawing logs a maximum length of 20 or 22 feet has certain advantages over one for sawing logs up to 42 feet long, such as requiring a much smaller building; smaller and less first cost machinery; will produce greater over run on log scale; requires lighter slabbing on bowed or curved logs, and faster operation of carriage.

At the top, the Sumner Knot Borer, used for removing knots, bark seams and other defects.

The second pictures show a new type combination hand slab barker and knot or defect removing saw with a swinging table.

The third picture from the top shows the Sumner shaker type chip screen.

The bottom photograph illustrates the new type refuse hog for producing fuel from wood waste.

10 YEARS AGO IN PACIFIC PULP & PAPER INDUSTRY

MARCH-APRIL, 1927

'49 to '27: Paper makings round the Horn . . . a "biggest" comes west . . . Pacific Industry gets a lab and school . . .

Around the Horn: Gold mining was not the only activity of the '49ers. The first paper mill on the Pacific Coast, says *Pulp* for March, 1927, was built by W. P. Taylor at Camp Taylor, California, shortly after the gold rush. Living fingers of memory stretched back to this mill until 1931, when Joe Quillan died. Joe, for 32 years

a machine tender for Everett Pulp & Paper Company, was a machine tender in this mill. Joe told *Pulp* readers that the raw material used was composed of old burlaps, rags and old papers; the products were chiefly manila paper, fruit wrap, and other products which were sold in the Taylor Brothers' own store in San Francisco. All the mill machinery came around the Horn.

Research Comes West: In contrast with the paper "industry" of Joe Quillan's early days, University of Washington in March, 1927, had plans finished for completely equipping an experimental research laboratory devoted to problems of the pulp and paper industry. "In addition to providing facilities for research in im-

proved methods, new processes and pulp testing, it is the object of this project to create a center for the training of men in the basic principles of pulp and paper making," said *Pulp*. The project was welcomed by the industry, as many of its problems were peculiar to the West. Courses were designed to provide men and data definitely useful in solving mill problems.

Far-Sighted: "It is quite certain that a national policy of reforestation will be necessary . . . future generations must be safeguarded and it is . . . vital that the next

crop of pulp material for paper manufacture be now considered. . . . It is not too early to commence the establishment of a program for the reforestation of the pulp timber areas of the Pacific Coast . . ." wrote C. R. Berry, Forestry Engineer, in *Pulp* ten years ago. Same issue reported completion of Crown-Willamette Paper Company's 1927 reforestation program when the crew withdrew from the upper Youngs River Valley in Clatsop County, Oregon. Far-sighted, Berry foresaw a necessity which was translated into accomplished fact years later, when the Civilian Conservation Corps marched across the nation's denuded forest lands to plant Federal Government seedlings.

Biggest: Truly Western, *Pulp's* April, '27, issue carried news that the largest paper contract ever made went to a Western producer: "Said to be the largest paper purchase contract ever made, an agreement has been completed between the Crown Willamette Paper Company

and William Randolph Hearst, publisher, for a ten years' supply of paper for the Hearst papers on the Pacific Coast. A. B. Martin, vice-president of the Crown Willamette Company, has stated that the amount of the contract exceeds $150,000,000." Look at your Hearst paper this morning; probably the stock is part of that world's largest contract.

All Here: "Deposits of all the substances needed in the industry" are to be found in the Coastal regions. So said Milnor Roberts' articles discussing mineral resources in *Pulp*, March and April, 1927. And chlorine in Pacific's blue waters, he might have added. When he wrote, Great Western Electro-Chemical Company had

already been the Coast's pioneer producer of electrolytic chlorine for eleven years. In the next decade Great Western pioneered also in producing Chloramines, the Hypochlorous Acid Process, Zinc Hydrosulphite for the pulp and paper industry . . . probably will pioneer in succeeding years with other products and processes to meet the industry's needs.

GREAT WESTERN ELECTRO-CHEMICAL CO.

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In addition to machinery listed above, the 20-foot mill will require a circular or drag saw for cutting logs in two on the deck.

A modern single side band mill for sawing 20-foot logs with a carriage equipped with power dogging device should be capable of sawing cants equivalent to fifteen thousand board feet of lumber per hour and a double side mill of this size should saw twice that amount per hour.

The personnel of a single band mill such as outlined above would be:

One pond man,
One deckman who would scale and also operate the saw for cutting logs in two,
One head sawyer,
One tail sawyer or offbearer,
One carriage man (to do dogging and setting out of logs),
One edgerman,
One trimmer floor man,
One trimmerman,
One millwright for maintainance.
One filer,
One oiler,
One electrician,
One foreman.

A total of thirteen men capable of cutting up 175,000 board feet per eight hour shift, or about 13,500 board feet per man per shift.

In a double band mill of this size there would be added five men to the above personnel of thirteen men as follows:

One sawyer,
One carriage man,
One tail sawyer,
One edgerman,
One filer's helper.

The production of such a double sided mill with eighteen men would be 350,000 board feet per eight-hour shift or an average of 19,500 board feet per man per shift.

Since the machinery used in a saw mill such as outlined above is all standard and as commonly known and used in the sawing of lumber, it hardly requires further introduction or description. The conventional type of edger which is used for edging and reducing flitches and cants, uses heavy gauge circular saws, which cause considerable loss of wood in saw dust and in power consumption.

Mills of recent design are substituting band saws in place of circular saw edgers for edging and splitting with run around rolls and transfers for feeding same, thus reducing the saw kerf and consequent waste in saw dust by 50 to 60 per cent as well as effecting considerable saving in power required in driving saws.

These band saw edgers may be used single or in batteries of two, as production requires.

The slasher has a series of circular saws fixed on an arbor at four feet apart for reducing refuse and slabs to four feet lengths for convenience in conveying, handling, barking and cleaning such pieces as are worth saving.

The trimmer has a battery of selective circular saws mounted in line at two feet apart and any or all can be lowered by the operator to cut cants of desired lengths or to cut out rotten or defective parts.

Barking

Due to the many kinds, sizes and shapes of wood to be barked, the problem for proper means and machines for doing this has been given a great deal of thought and study. Many different types of machines have been developed and used for barking wood and some are capable of doing quite a creditable job. But the consensus of opinion seems to be that the perfect means for barking has not yet been discovered. Until that time arrives, however, we will be obliged to be content with such means as are now available.

Barking machines may be classified as:

(a) power operated, and
(b) as hand or manually operated.

Under power operated are such as:

A. Drum Barkers,
Cant Barkers,
Slab Barkers,
Round Log Barkers.

and under hand operated are:

B. Disc Barkers,
Hand Barkers (single or double head).

Power Operated Barkers

Drum barkers are built in various sizes and capacities and are particularly adaptable for barking small diameter round logs cut in lengths up to four feet. These are also quite commonly used for barking split or cord wood, as well as edgings and slabs from saw mill refuse, but the percentage in wood loss in barking these is greater than on round sections and is more nearly proportionate in ratio of the clean surfaces to that containing bark.

Due to the angular sections of cord and slab wood, the corners are worn off from the clean parts of the wood by the rubbing and abrasive action resulting in a considerable wood loss. Pieces of wood having deep crevices are bark seams on the outer surfaces should be segregated for barking and cleaning by some hand methods.

Cant and slab barkers are of comparatively recent designs and are particularly adaptable for barking of wood from the saw mill break-down operation.

As the name implies, cant barkers are designed to remove the bark from large and long cants which usually have three clean surfaces. This is done by means of a large cutter powered cutter head, so flexible in its movements by means of control devices that it is possible to follow the contour of the bark surface with the cutter head and remove the bark with very little waste.

The introduction of the cant barker has reduced the amount of hand barking to a minimum on wood from the saw mill as previously these bark surfaces were all sawn off, as slabs, and then cut up in sizes convenient for hand barkers.

Slab barkers are comparatively simple construction, consisting primarily of a flat power feed table with a concave power driven cutter head overhead so mounted in a swing ladder that it may be adjusted to follow the bark contour of the slab.

Both cant and slab barker capacities are rated by the number of lineal feet of wood which will pass through them regardless of sectional wood areas.

A number of different types of machines have been designed and built for barking round logs and have met with some degree of success.

Owing to the duty of such machines they must necessarily be large and of strong construction. The cutter head is arranged on a carriage to traverse the length of the log with means for raising and lowering same to follow the contour of the log surface thus making a spiral cut or kerf as the log is rotated by power.

Due to difficulty in barking bent or curved logs by this method, it is advisable to reduce logs to be barked to lengths from 10 to 20 feet depending upon the amount of curvature in same.

Hand Operated Barkers

Disc barkers are probably the oldest and most familiar type of hand barkers used. They are made in various sizes with discs 48, 60, 72 and 84 inches in diameter. The selection of proper sizes is dependent upon the lengths of pieces of wood to be barked.

They are most suitable for barking round wood and split or cord wood, and usually used in conjunction with the splitter type of break down departments.

Operation on disc barkers is considered quite hazardous since the wood is forced against the rotating disc knives by hand and accidental slip or rolling of the wood toward the disc may draw the operator's hand into the knives.

Hand barkers are commonly used for barking small sections of wood which come from mill refuse or waste, such as edgings and slabs. These pieces are usually cut into four-foot lengths on the saw mill slasher or trimmer for convenience in handling and are sorted or hand picked from the mill refuse conveyor. Heavy or wide slabs are usually sawn into narrow pieces on bolter saws before going to the hand barkers.

An innovation recently has been made to single head hand barkers by combining a table knot saw with same in such a manner that the operator can conveniently and completely clean all pieces of wood with one handling, before going to the chippers.

Hand barkers are made in either the single or double head type with either straight or concave cutting edges on the cutter head knives. The cutter heads are usually well guarded by a steel hood or housing over same, which prevents the wood from being thrown upward and also serves as a gauge or bumper to prevent the operator's hands being drawn into the knives.

Most of the wood which is to be hand barked comes from the outer surfaces of the logs and usually is the highest quality for making pulp chips.

In hand barking, there is the possibility of operator's spending more time and labor on some pieces of wood than they are worth, which tends to increase the cost of wood cleaned by this method. For this reason it may be advisable to provide some means of checking the wood cleaned by each operator.

Wood Cleaning Process

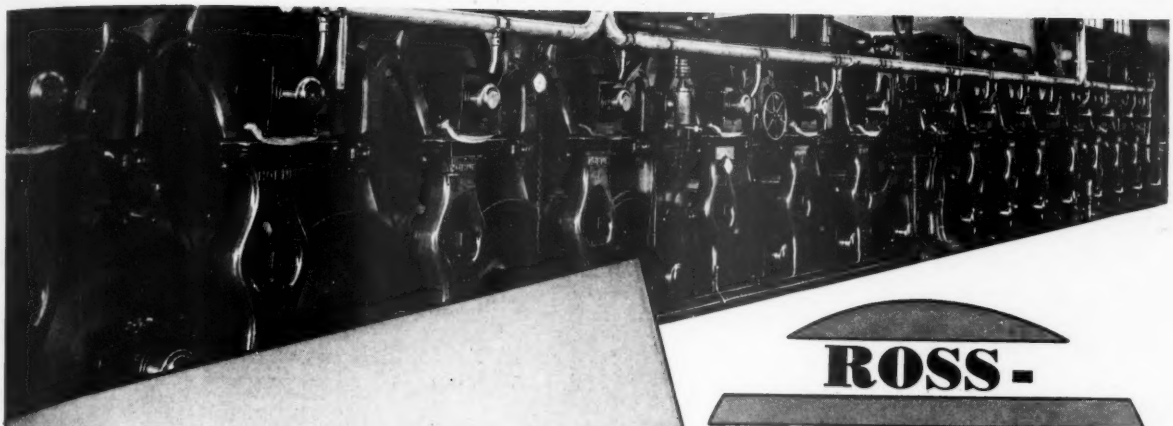
The next operation is the process of further cleaning the wood and recently this process has been receiving more of the attention it deserves in the manufacture of high grade pulp.

Pulp can be no cleaner than the material from which it is made and to produce clean pulp and hold down dirt count we must use clean wood.

The proper place, to take out and keep out dirt, first is in the preparation of wood before chipping.

The trend toward cleaner wood has stimulated development in devices for cleaning, and has resulted in several different types of machines briefly listed as follows:

Brouters,
Knot Saws,
Knot Borers.



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Brouters are provided with special rotating cutters used in routing or gouging and for removing bark and rot seams by means of power.

Knot saws, commonly known as such are built with stationary saws having either rolling or stationary flat tables on which the wood is fed to the saw, or with swinging table or arbors carrying either wabble saws or dado heads which are capable of removing a considerable width of kerf at each pass or swing.

Knot Borers

Knot borers are a product of the demand for more minute cleaning or preparing of wood especially for making of unbleached sulphite pulp. While the operation of boring wood seems like a simple one, the machine required for doing this work economically is somewhat complicated.

As a concrete example of such a machine, reference is made to the particular type designed and built by the Sumner Iron Works of Everett, Washington.

The appearance and operation of this machine is very similar to that of the radial drill press commonly used in machine shops having a radial arm which moves in and out from the column and an up and down movement for the feed of the drill.

The radial arm is mounted on a rotating head on the column, which revolves on frictionless bearings in the column and is raised and lowered by means of a double action hydraulic cylinder for feeding the drill. The upper end of the rotating head has large ball bearing rollers upon which is mounted the radial arm, the outer end of which has incorporated a special high speed motor on the arbor of which in turn is attached the drill.

Due to the mounting of parts in frictionless bearings, the slightest touch of the operator's hand is required in positioning the drill in any desired position within the range of the machine limits.

The full throw of the feeding lever then instantly automatically locks the swing and in and out movements of the radial arm by hydraulic locks before the point of the drill can enter the wood.

This distinctive feature makes it possible to bore enlarged and half holes and on the outer edges of the wood.

Just before the drill point enters the wood in lowering a set of dogs automatically operated by the downward motion of the ram firmly engage the up surface of the cant holding same firmly during the boring period and are released when the ram rises.

This type of machine was designed and is being used by the Weyerhaeuser Timber Company's Everett pulp mill primarily for the purpose of boring out knots and routing out bark and rot seams from the cants which makes it a universal cleaning machine.

Knot Borer Table

Due to the size and weight of cants to be cleaned which come from the saw mill break down, a special roller top drop table has been designed, operated by steam or air cylinder, by which the cants may be instantaneously and automatically turned upside down.

As the table is dropped, the back edge of the cant is caught on adjustable arms and held up, while the forward edge drops downward and over in the special curved recess in the frames. The table then rises up under the cant which has been reversed and resumes its normal position for boring. Due to the fact that in the turning operation on this table, the cant falls downward and away from the drill point it results in saving of time and faster operation than if it was necessary to raise and lower the drill by the amount required in turning over cants on the working level to clear same under the drill point.

Other types of tables may be provided with this knot borer for convenience in handling cord or round wood.

Chippers

The chipping operation is the most important of all in wood preparation for any but ground wood mills as in this operation it is possible to produce a large percentage of waste by making uneven lengths of chips; the short chips will over cook and produce sludge while the long chips will under cook in the digester and pass over the screens.

In chippers properly designed and built it is possible to guard against making both over and underlength chips by proper adjustment of disc and knives with relation to anvils.

If the demand is for uniformity in chip length, the only way to obtain this result is in a precision chipper in which the proper relation of parts can be finely adjusted and maintained. Reject chips may be caused—

1st—By knives which are dull or miss set,

2nd—By the anvils against which the knives cut being dull, worn or out of proper position with reference to disc knife edges,

3rd—By the face of the disc against which the wood engages in gauging chip length, being worn,

4th—By the spout into which the wood is fed being of wrong design, allowing the wood to roll and bounce as the knives attack same,

5th—By not keeping the spout full to hold the pieces upright and prevent them from tipping over sidewise against the disc when short enough to do so.

In is impossible to prevent a few short chips being cut from the corners of the ends of each piece of wood and the proportion of short chips thus made depends upon the number of and sizes of pieces of wood fed into the spout.

The longer and larger the wood sections are, the greater are the possibilities for uniform length chips and it is for this reason that the saw mill type of break down mill has become popular in cutting up the larger timber. Pieces of timber 10 to 20 feet in length can be put through the chipper provided sufficient height is available for feeding into the spout.

The spouts on chippers are designed for feeding either round logs or for feeding squares and cord wood. The spouts are usually designed large enough to receive rated capacities based n feeding loose or cord wood, or the equal sectional area of timbers.

Chippers are built in sizes of disc diameters, 51, 66, 72, 84 and 110 inches, right or left hand, with overhead or underneath discharge, direct motor, flat belt or "V" belt drives.

There are instances where, due to conditions, the overhead discharge of chips may be required but this type is usually objectionable due to the "fines" which are made by the chips beating against fan blades and housings.

Chippers properly designed and built and running at the proper speeds, will so disintegrate the cards as to require comparatively less screening capacity, and the oversize chips are usually those made from portions of wood having knots. These knot chips produce slivers and it would be better to throw these overs directly into fuel instead of trying to rechip or crush same. Rechippers or crushers may be used if it is found advisable to reclaim the overs.

Chip Screens

Screens are built in various types such as the Hummer, Vibrator, Rotary and flat shaker. Each of these types have their advantages but of late the adoption of the flat screens in this section would indicate a preference for that type and for that reason this type will be discussed briefly.

The features of prime importance in the design of flat shaker screens are—

Freedom and balance of moving parts,
Proper incline and cascading of chips,
Proper speed of oscillation for a given pitch to obtain rated capacity.

Too great an incline and too slow speed of screen will result in improper screening and too many accepted size of chips going with the oversize chips into rechipper or crusher.

Another very essential feature is that the machine be built on a very heavy and rigidly constructed steel frame to maintain proper alignment of all working parts.

Chip Dusters

One of the most recent developments in wood preparation is the Norman Patent Chip Duster now built by the Sumner Iron Works of Everett, Washington. This machine operates on the same principle as the old hand operated fanning mill use by farmers as a means of separating the chaff from the wheat.

It consists primarily of power operated rotating magazine devices for feeding chips into the air screening chamber at the top and out at the bottom.

As the chips fall down over an inclined screen placed between the air supply and discharge chambers, the air drawn through the sheet of chips removes all the fine dust and dirt, which would ordinarily go into the digesters.

The amount of dirt and dust removed by this process depends upon the kind of wood, method of break down and cleaning; efficiency of wood washing system, kind of work done in chippers, and methods of conveying and handling chips previous to introduction into the dusters.

These dusters are built in 30 and 36-inch wide, either single or double, ranging normally in capacities from 20 units of chips per hour for the single 30-inch to 50 units per hour for the 36-inch double.

On the many installations now in use the dirt units removed vary, but will average ½ of one per cent of total volume of chips fed through dusters. When it is possible to do so it is better to locate the chip dusters in line going directly from the chippers to the digester feed or between the chip storage and the digesters as any further conveying and falling after they have passed through the dusters will produce more dust and fines.

Grinders

These are built in various sizes and for wood up to four feet in length and of two types, the pocket type for hand charging and the magazine type for

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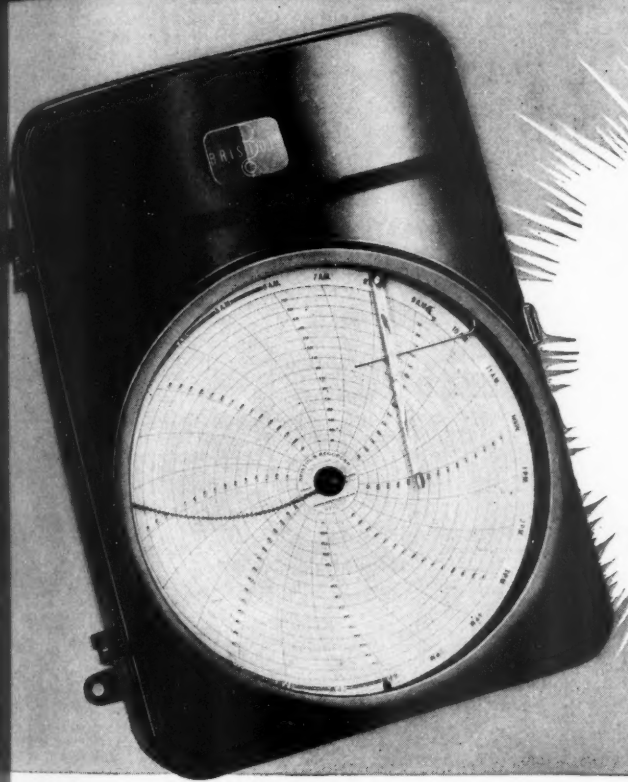

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WRITE FOR BULLETIN NO. 482C

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charging from an overhead conveyor for continuous operation.

As these are rather complicated machines, due to lack of time or space, detail treatment regarding same will not be continued.

Transporting Chips

The methods of conveying and handling of pulp chips is also of importance. After chips have been properly made, they represent a considerable expenditure and investment and should therefore be cared for and handled as such.

The practice of conveying chips by drag conveyors or bucket elevators, is quite common but is not advisable due to the severe treatment they receive by these means. It is always preferable to convey chips on carriers such as belt conveyors to minimize disintegration.

Much more could be said on the subject of conveying and refuse in wood preparation but due to limited time and space only this can be mentioned. The waste in normal operation will average somewhere from 15 to 20 per cent.

In conclusion we should not forget that unfit material in chips such as dirt, saw dust, over or under length chips, fines, etc., which enter the digesters will consume the time, space, steam and acid and labor in proportion to the volume of good chips resulting in a loss and consequent reduction in yield.

Much of this loss can be eliminated by clean wood, uniform and clean chips.

Export Market to Pay Higher for News

Although domestic buyers will be paying a base price of $50 a ton for their newsprint, the export market will pay considerably in excess of that, as it is already doing, according to sales executives of Powell River Company and Pacific Mills, British Columbia newsprint producers.

In Australia contract sales for 1937 and 1938 deliveries were made last year at the equivalent of $52.50 a ton, and a recent sale for delivery this year was at the rate of $57.50. No prices have been quoted for 1938, but one mill is said to have replied to a recent query to the effect that orders could be closed now for next year at $62.50. This would be an increase of $15 over the 1936 contract figure.

As for the Orient, Scandinavian and German newsprint tonnage was recently sold in China for as high as $75 a ton, and a few Canadian sales have been made at around $70, these being on a long ton basis. In Japan Canadian mills have been quoting $62.50 and $65 per long ton. Considerable tonnage has been booked at that level, and Japan is apparently keen to do business.

Pacific Coast mills have not been interested in the South American market lately, but eastern mills have sold in Argentine and Brazil at $62.50 this year, but declining more orders at that rate. Scandinavian mills are quoting $65 and $67.50.

English mills last July fixed contract prices to London publishers for this year and 1938 at $50 a long ton, but increased cost of pulp will necessitate a revision upward. Current quotations on spot tonnage in London runs as high as $75, only those who have had long contracts getting the lower figure.

Portland Chamber Forms Pulp Committee

For the purpose of assembling all available data on the industry and its possibilities, and to promote its solid growth in the Pacific Northwest, the Portland Chamber of Commerce recently formed a Pulp and Paper Committee.

Its first step will be to lay out a program of study on which to base future action. An exhaustive study of the industry in the United States and in the Pacific Northwest is proposed, and the gathering of complete statistical data on consumption, domestic production and imports of the various types and grades of pulp and paper.

The movement is not strictly local, in the sense that an effort will be made to cooperate with interested parties in Washington and Alaska to the benefit of the entire area.

The committee will work to encourage the use of western pulps in the manufacture of plastics, and will cooperate with research laboratories in determining whether Pacific Coast pulp can be successfully used in competition with cotton linters in making lacquers, etc. It is also hoped to stimulate active research on the part of state and federal laboratories, to aid the industry as has been done in the southern pine region through help of the U. S. Forest Laboratory, the Chemical Foundation, etc.

The Pulp and Paper Committee, as first and tentatively organized, is composed of the following: Thomas J. Autzen, president, Portland Manufacturing Company; T. H. Banfield, Iron Fireman Mfg. Co.; E. S. Collins, lumberman; Thomas Dant, Dant and Russell; H. A. DesMarais, General Dye Stuff Corp.; Alec C. Duncan, Paper Makers Chemical Co.; Dr. Leo Friedman, Chemistry Dept., Oregon State College; George Frogner, Langman Electric & Engineering Co.; George Gardner, timber broker; Louis Gerlinger, Jr., Gerlinger Products Corp; Bruce Hoffman, asst. regional forester, United States Forest Service;

G. G. Kinney, vice pres., Clark and Wilson Lumber Company; E. B. MacNaughton, First National Bank; B. T. McBain, Portland Electric Power Co.; Raymond Miller, U. S. Enginers, Bonneville Secton; Thornton T. Munger, Pacific Northwest Forest Experiment Station; J. C. Plankinton, Northwestern Electric Co.; O. L. Price, Oregonian; Frank H. Ransom, Eastern and Western Lumber Co.; Jack Smith, Western Cooperage Co.; H. B. Van Duzer, Inman Poulsen Lumber Co.; Lloyd J. Wentworth, Douglas Fir Exploitation and Export Co.; S. R. Winch, Oregon Journal; James Zancker, president, Lit-Rite Corp.

Hanigan Talking On Coast

E. J. Hanigan, production manager of the gum paper division of the Dennison Manufacturing Company of Framingham, Mass., is spending a thirty-day visit on the Coast. He was a guest speaker at the Pacific Society Conference of the Printing House Craftsmen at Phoenix. The meeting was held April 2, 3 and 4.

Grays Harbor Pays Dividend

Directors of the Grays Harbor Pulp & Paper Company on March 31st declared a dividend on the company's 8 per cent preferred stock aggregating $519,691. Of this amount $181,981 is in payment of the dividends on that part of the preferred issued prior to July 1, 1929, and is payable April 20th to stockholders of record April 7th.

The other dividend, payable on all the preferred, amounting to $337,710, is equivalent to $10 per share and is payable April 20th to holders of record April 13th.

After payment of these dividends there will remain an arrearage as of April 1, 1937, of $52 per share.

Chinese Mill Starting in April

The new paper mill at Honam Island, near Canton, will begin operations in April, according to an article appearing in the South China Morning Post of January 29. The mill, which costs HK$7,000,000, was designed and built by a representative of the Swedish Karlstadt Works. The mill will have an initial capacity of 50 tons of newsprint daily. Later, with the plant in full swing, the mill will turn its attention to other types of paper. The raw material utilized will be China pine. (Consul Howard Donovan, Hong Kong)

Hugh Walden Dies In California

The friends of Edward Walden of the Acme Paper Co., Glendale, were sorry to hear of the death March 15th of Mr. Walden's father, Hugh A. Walden. The senior Mr. Walden made his home in San Bernadino where he had served for the past fourteen years on the board of education. Prior to this he was with Cahen-Strogoff Paper Co. of Los Angeles, and some years before was with the Carpenter Paper Co. of Omaha. Mr. Walden is survived by the widow and seven children.

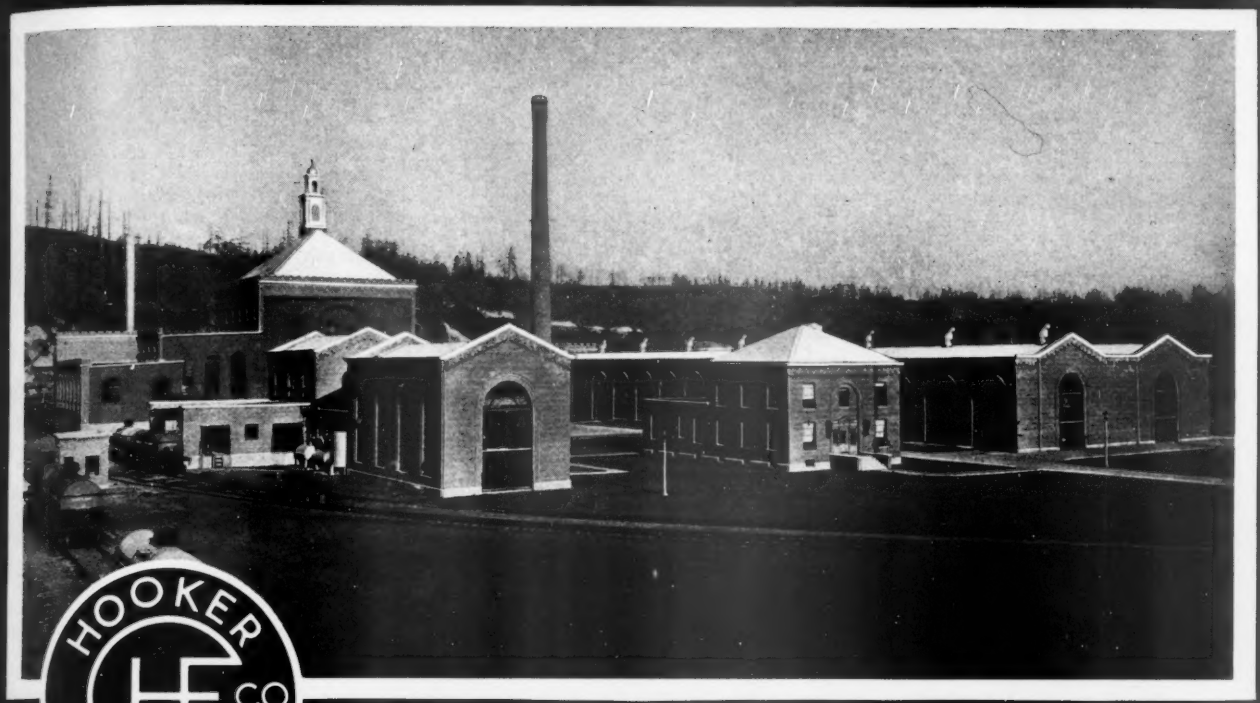
Bermingham A Coast Visitor

Mr. and Mrs. Arthur T. Bermingham of Chicago sailed from San Francisco March 20, on the "Santa Elena" via the Panama Canal and back to Chicago by way of Havana, Cuba. Mr. Bermingham is president of the Bermingham & Prosser Company, well known paper jobbers with headquarters in Chicago and branches in Kalamazoo, Michigan; Kansas City, Missouri; and New York City.

Just as Mr. Bermingham was leaving the harbor at San Pedro he received word of the sudden death of Mr. Henry G. Frosser, vice-president of the concern.

Zellerbach Entertains Purchasing Agents

The Zellerbach Paper Co. acted as host to the Purchasing Agents Association of Los Angeles on St. Patrick's Day when the group was served a luncheon in the plant and given a tour of the factory. More than 100 were in attendance.



HOOKER ELECTROCHEMICAL CO

CAUSTIC SODA
LIQUID CHLORINE
FOR THE NORTHWEST

Appreciating the diversified uses of Caustic Soda and Liquid Chlorine, the Hooker Company offers the technical services of an experienced engineering staff. Mills in the east and south as well as the west have used Hooker service to help solve their operating problems. At Tacoma, Washington, are maintained plant, laboratories, field staff and administrative personnel to serve west coast industries.

WESTERN PLANT, Tacoma, Washington
Western Sales Office, Tacoma, Washington

EASTERN PLANT, Niagara Falls, N. Y.
Eastern Sales Office, 60 East 42nd St., New York

HOOKER ELECTROCHEMICAL COMPANY

MURIATIC ACID · BLEACHING POWDER · MONOCHLORBENZENE · PARADICHLORBENZENE
BENZOATE OF SODA · BENZOIC ACID · BENZOYL CHLORIDE · BENZYL ALCOHOL
SULFUR MONOCHLORIDE · SULFUR DICHLORIDE · SULFURYL CHLORIDE · SALT
FERRIC CHLORIDE · ANTIMONY CHLORIDE

5503

Trade Talk

of Those Who Sell Paper in the Western States

New Cash-Carry Paper Jobber

"Gilbert Paper Co. A Profit-Sharing Enterprise. Cash and Carry."

This is the sign on a new paper jobbing house just opened on Folsom Street in San Francisco. Bernard Gilbert, Jr., is the manager. He is a son of Bernard Gilbert, Sr., who has had a similar paper selling house in Los Angeles for three years and one in New York.

Mr. Gilbert, senior, says the company is owned by Morris I. Kubert of the Paper Mills Trading Co. of New York. Gilbert has been in the paper business for 40 years and was for a long time with the National Paper Co. of New York. He has been on the coast 17 years.

Hall Starts Paper Firm

The Southern California Paper Co. was recently organized by Freeman Hall. Headquarters of the new firm will be at 1142 Maple Ave., Los Angeles. A. H. Segretti, formerly with the Angelus Newsprint Co. which is now out of business, has associated himself with Mr. Hall. The firm will primarily job newsprint.

Menkes Starts Envelope Co.

Herman J. Menkes has started the California Envelope Co. in Los Angeles. At present he is confining his operations to imprinting.

Zellerbach In Spanish?

"It wouldn't surprise us if a new Zellerbach division was built on a peak of the Andes," says the Zellerbach house organ, "Sales Ahead" commenting on the enthusiasm of President Harold Zellerbach of the Zellerbach Paper Co. for South America following his recent trip there. Mr. Zellerbach is back at work, tanned by tropical suns. Early in April he was contemplating a trip to Arizona.

"Sales Ahead" goes on with the South American division theory and asks: "But how could you give 'Zellerbach' a Spanish accent?"

Thorpe To Rest

Geo. Thorpe, who has been active for many years with the arpenter Paper Co. as one of the assistants to "Zeke" Carpenter, has resigned., Mr. Thorpe suffered a serious attack of influenza during the winter which was followed by pneumonia. Mr. Thorpe plans to recuperate in Arizona.

Knode Assists Paper Men Organize

S. C. Knode, vice-president of the Albermarle Paper Co. of Richmond, Va., was in San Francisco in April and while there he was being interviewed by B. P. (Doc) Jaggard for information regarding organizations of paper mill men. Mr. Jaggard is active in the organization at San Francisco of a mill men's club similar to the one in Los Angeles and Mr. Knode's help is considered very valuable because he is a past president of the national Salesmen's Association of the Paper Industry.

W. J. Gray of the Paterson Parchment Paper Co. and T. C. Macormack of the Strathmore Paper Co. are on an organization committee with Mr. Jaggard and these three planned a luncheon with Mr. Knode on his return to San Francisco from Los Angeles in April.

Preliminary plans will be laid out in April and a general meeting of prospective members is being considered for Del Monte over May 13, 14 and 15 at the time the mill men will be there in attendance at the Pacific States Paper Trade Association.

R. C. Johnson of the Northwest Paper Co. of Chicago is this year's president of the Salesmen's Association.

Mr. Jaggard is with the San Francisco office of the Grays Harbor Corporation and the Hammermill Paper Co.

Sinclair Heads Paper Men's Club

Officers for the ensuing year were elected at the bi-monthly evening meeting of the Los Angeles Paper Mill Men's Club, March 31, at the Omar's Dome Cafe, Los Angeles. Neil B. Sinclair, who has served as vice-president for the past year, was named to take the place of Edward N. Smith, now junior past president. Dewey Megel moved from the secretaryship to be come new vice-president. Geo. C. Wieman left the treasurer's post to become secretary and Al Hentschel was elected new treasurer. Mr. Hentschel's post was the only one voted on as the rule is followed which moves officers up the line when each succeeding president has served his term. There were three contestants for the treasurership.

Frank Philbrook, president of the organization prior to Mr. Smith's term, presided during the election. Attendance was good with 41 members on hand and five guests. A pleasant social evening was enjoyed followed by games. Rumor has it that genial, newly-elected President Sinclair not only walked off with the presidency, but also basked quite handsomely during the evening in the generous favor of Lady Luck.

Commercial Paper In New Building

Commercial Paper Corp., San Francisco, moved in April from Davis street to its new six-story building at 48 Jackson Street, where they now have 40,000 square feet of floor space, which is double their old capacity. Marcus Alter is president.

Central Paper Co. Open For Business

Rolla De Hater recently opened a general coarse paper business under the name of the Central Paper Co. with headquarters at 521 West Windsor St., Glendale. Mr. De Hater was formerly salesman for Blake, Moffitt & Towne.

Acme Paper Rebuilding

Completely rebuilt offices, sample room and storage space will be gained by the Acme Paper Co. of 1060 Howard Street, San Francisco, as the result of a $30,000 fire it suffered early in April. Temporary offices have been established at 1070 Howard Street, nearby, and the rebuilding task is expected to be completed early in May.

Arthur Gordon, manager, says the fire started in the laboratory when a keg of soap overturned. Floyd Taber, shipping clerk, was the hero of the fire when he tried in vain to stop it at its source and suffered third degree burns as a consequence. He was sent to a hospital.

Acme paper has been in business about 12 years in San Francisco.

Mrs. Palm To Europe

A summer trip through Europe is to start in May for Mrs. Glory Palm of the advertising department of the Zellerbach Paper Co. at San Francisco. Accompanied by her husband, Mrs. Palm will sail on the liner "Normandie" from New York May 19, will attend the International Exposition in Paris; visit mills in England to study the manufacture of hand-made papers; go on to the Scandinavian countries and return to San Francisco in August.

Tuttle In California

A. Frank Tuttle, president of the Tuttle Press Co. of Wisonsin, recently drove west for a vacation and is now residing temporarily in Beverly Hills. He will return home at the end of May.

Planning Del Monte Golf

G. J. Ticoulat of the Crown Willamette Paper Co. of San Francisco again heads the committee in charge of the golf tournament to be staged by the paper mill men during the 1937 convention of the Pacific States Paper Trade Convention at Del Monte May 13-15.

Memberhsip of the committee remains the same as last year. On it are Augustus Johnson, Fitchburg Paper Co.; Marcus Baruh, Crown Zellerbach Corporation; Andrew Christ, Jr., Western Waxed Paper Co. and W. J. Gray, Paterson Parchment Paper Co.

Chairman Ticoulet says it is probable the tournament competition will be match play instead of being a medal event, as it was last year. Prizes doubtless will be of the same high order as for years past and will likely be from the same donors.

Winner of last year's tournament was Charles A. Spies of the Cupples Co., Los Angeles.

Paper Jobbers Assessed Fine

The Circuit Court of Appeals for the Ninth Circuit on March 17, 1937 rendered judgment fining the members of the Pacific States Paper Trade Association jointly $10,000.00.

This represents the termination of a proceeding begun in May, 1936 on the motion of the Federal Trade Commission which alleged violations of a previous injunction.

The matter was submitted to the Court on a stipulation which provided in part "that the disposition of the rule to show cause shall not be construed as placing any interpretation upon the terms of the original decree or supplementing the same in respect to any question which may hereafter arise thereunder."

H. Arthur Dunn, Jr., counsel for the Pacific States Paper Trade Association, pointed out that many of the acts alleged to constitute violations of the decree took place during the period of time when the National Industrial Recovery Act was in effect and the paper merchants were operating under a code for their industry.

Freight Rates A Problem

New freight rates recently authorized by the state railroad commission (California) to become effective April 12 have given paper jobbers considerable concern because of readjustments required in distribution.

Dockrell Heads Zellerbach Club

John Dockrell, salesman of the Zellerbach Paper Co., San Francisco, is the 1937 president of the Zellerbach employes' recreational club. Leon Lowenthal is vice-president, Miss Leota Roe secretary, and Miss Mildred Brown treasurer. They plan a May Day Dance at the Bellevue Hotel, San Francisco, May 1st.

Kindleberger On Coast Trip

The chairman of the board of the Kalamazoo Vegetable Parchment Company, Mr. J. Kindleberger, together with Mrs. Kindleberger and Mr. and Mrs. James Greenlee of Chicago stopped in San Francisco on the last lap on their way home from a trip starting at New York City and including stops at various points in Central America and Mexico. Mr. Greenlee is vice-president of the company and has charge of the business in Chicago. They reported business conditions in Mexico to be much the same as in the United States, all paper mills being very busy.

Ed Smith In Northwest

Edward N. Smith, well known Los Angeles paper mill representative, left April 6 for Portland. He will stop there for a few days and go on to Tacoma and to Seattle. At Seattle he will meet John A. Wesley, sales manager of the Rhinelander Paper Co. of Wisconsin, and the two will return to Los Angeles together calling on the trade en route. Mr. Wesley has not been on the Coast for three years.

Colton Never Misses

"Take Me Out to the Ball Game" is a song which has rung in Louie Colton's ears every year but two since 1913 on the opening day of the Pacific Coast Baseball League. This year he went to see the San Francisco Seals beat the Missions and took with him Sam Knode, vice-president of the Albermarle Paper Co. of Richmond, Van. and Jim Nail, sales manager of the Oregon Pulp & Paper Co. at San Francisco. Louie is vice-president of the Zellerbach Paper Co. in charge of purchasing.

Newmark Promoted

Allan R. Newmark was recently made assistant sales manager in charge of printing paper at the Zellerbach Paper Co., Los Angeles. Mr. Newmark has been with the company for many years.

No News Is News

Ever hear of no news being news? Well, you're going to hear of it now. It happened when PACIFIC PULP & PAPER INDUSTRY called at the San Francisco offices of Blake, Moffitt & Towne and asked Reeve T. Watson, the advertising and public relations manager, for his usually interesting and sizable batch of goings on in the company.

"Haven't a thing!" said Reeve, himself as surprised as was the correspondent at the state of affairs.

Never before, in Watson's career as advertising manager, has he been without something interesting each month.

And that, dear reader, is news.

New Use for Cellophane

Ted Breedlaw of the San Jose division of Zellerbach Paper Co. has found a new use for Moistureproof Cellophane. Orchardists use it for a head protection while spraying prune trees.

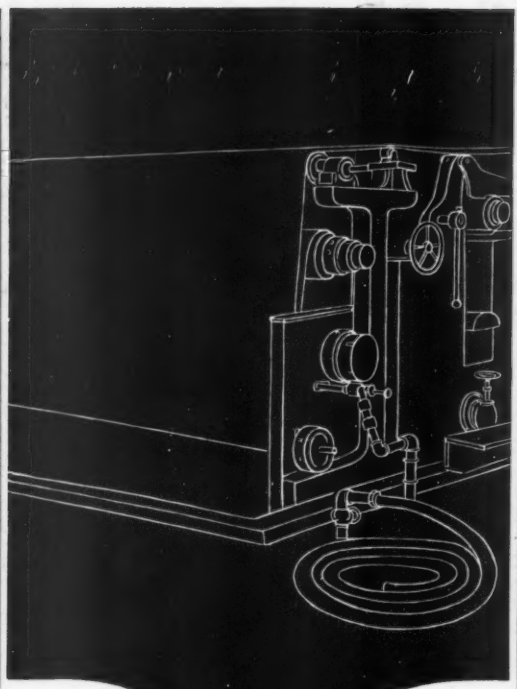
Colton's Card Collection

There are thirteen big black books in the files of Louis A. Colton, San Francisco, vice-president in charge of purchasing of the Zellerbach Paper Co. and they are lettered, "A", "B", "C" and so on up to "M".

These are scrap books and Louie pastes in them the business cards of people who call on him. He's been doing this for 20 years and each book contains 200 cards.

Lightning calculation gives him a total of 2,600 cards in these books for th 20 years. Break this down and you get 130 cards for each year and, at 300 days per working year, this gives him . . . let's see? You'd better figure it out yourself, 'cause the lightnin" calculator broke down.

Louie also keeps a daily diary and when you call on him he'll tell you what day you were there last month and the month before and so on, ad infinitum.



Not Quality Alone

It's not only the superiority of the felt itself that has earned Orr its enviable reputation. It is also the ability of Orr representatives to select the right felt for the job.

Such ability, of course, comes only with experience . . . the kind of experience gained through years of contact with mill men and their problems . . . the kind that may be of help to you.

When the Orr representative calls, don't hesitate to discuss your felting problems. A bit of advice might save you thousands of dollars annually.

Pacific Coast Representative: WALTER S. HODGES
Pacific Bldg., Portland, Oregon

THE ORR FELT and BLANKET COMPANY
PIQUA, OHIO

ORR FELTS

The
TWENTIETH ANNUAL CONVENTION
of the
PACIFIC STATES PAPER TRADE ASSOCIATION
Will Be Held at the
Hotel Del Monte, Del Monte, California
Thursday, May 13th to Saturday, May 15th
(Inclusive)
Which You Are Cordially Invited To Attend

The customary procedure will be followed of dividing the time between BUSINESS SESSIONS and the usual GOLF TOURNAMENT, the qualifying round of which will be played Friday afternoon, May 14th. This will be the nineteenth annual golf tournament of the Pacific Coast Paper Manufacturers.

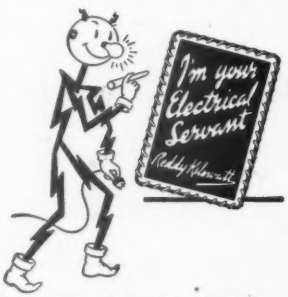
The usual provisions for RECREATION and the ENTERTAINMENT OF THE LADIES WILL BE MADE.

The ANNUAL BANQUET will be a joint affair with the GOLF DINNER, which will take place on Saturday evening, May 15th.

RESERVATIONS SHOULD BE MADE WITH H. ARTHUR DUNN, 311 CALIFORNIA STREET, SAN FRANCISCO, CALIFORNIA.

Get Acquainted With—

REDDY KILOWATT



Watch for His Interesting Messages!

PUGET SOUND POWER & LIGHT COMPANY
"To Best Serve the Public Interest"